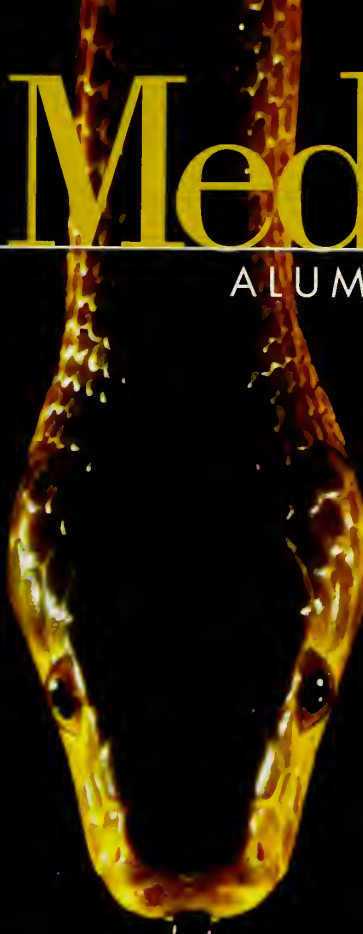


SPRING 2006

# Harvard Medical

ALUMNI BULLETIN



# The Seven Sins

{ DEADLY }

Just how perilous is pride? Is lust really so lethal? Does greed lead straight to the grave? Doctors, sworn to protect life, find themselves examining their own transgressions.



#### HISTORY

A nurse steadied the progress of her young patient as they strolled the corridor of an infant and toddler floor of Children's Hospital Boston a half century ago. The Harvard-affiliated hospital began in 1869 in the home of an alumnus, Francis Henry Brown, Class of 1861.



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### In This Issue

**J**UST OVER 1,400 YEARS AGO POPE GREGORY I PUT FORTH A LIST OF SEVEN deadly sins. To modern eyes, his "sins" may seem a little odd, as they generally don't entail doing anything bad or, indeed, doing much of anything at all. Thus, a contemporary secular reader might be inclined to translate the word as "criterion" rather than "sin," because Gregory's syndrome of pride, envy, greed, wrath, sloth, gluttony, and lust could well be seen as a precursor of the so-called Axis II disorders of contemporary psychiatry: the dramatic, self-centered, and impulsive conditions known as histrionic, narcissistic, and antisocial. Alternatively, his list can be seen as comprising the pit-

falls of character that each of us must wrestle with from day to day.

Modern medicine, especially preventive medicine, is at least as preoccupied with these deadly sins as were the Fathers of the Church. It is not possible to read the *New York Times* on Tuesdays without finding warnings of some aspect of sloth or gluttony and its implications for life expectancy, if not eternal life. Lust and its consequences, happy or horrifying, are ever-present in the examining room. Therapists

hear about envy, pride, or wrath, one way or

another, in every session. And whenever Medicare or managed care issues a new fee schedule, the implication that physicians' greed is, at bottom, the problem with the health-care system bubbles again to the journalistic surface.

So, in this issue seven *Bulletin* contributors face up to Gregory's sins, one by one, if not in an effort to shrive themselves, then to try to come clean on the operation of these various states of mind in their lives and those of their patients. We trust that our readers will find this exercise consoling.

*William Ira Bennett*



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"Forty-five million people are uninsured and, as Rushika Fernandopulle '94 wrote, gaps in health insurance have created a new 'caste of the ill, infirm, and marginally employed.'"

### Moral Danger

I want to commend you for addressing the critically important issue of universal health coverage in the Autumn 2005 issue of the *Bulletin*. As one of the richest countries in the world, the United States spends more per capita on health than other countries and achieves poorer outcomes. Forty-five million people are uninsured and, as Rushika Fernandopulle '94 wrote, gaps in health insurance have created a new "caste of the ill, infirm, and marginally employed." To be sure, it is a moral as well as an economic issue.

Modern medical science may provide us with more beneficial diagnostic and treatment options than our society can afford. We may not be able to do everything for everyone, and we may be forced to make difficult, sometimes tragic choices among competing health needs. These are not purely medical choices; they are ethical ones best made by all of us struggling toward consensus.

I have sent the *Bulletin's* autumn issue to my daughter, a family practitioner in rural northern California who operates a mobile medical practice to provide care to the underserved. (In 2003, the California Medical Association recognized her as the best rural practitioner in the state.) She has long been a strong advocate for a single-payer system and will find this issue of the *Bulletin* helpful to her advocacy efforts. She will also find the Katrina article of great interest. After

the storm, she took one of her mobile units to Texas to provide care for hurricane victims.

HENRY RING '53  
CORAL GABLES, FLORIDA

### A Turn for the Worse

I found the special report in the Autumn 2005 issue of the *Bulletin* intriguing, amusing, and somewhat misleading.

I believe federalized health care is politically inevitable. However, those who propose and support this approach should be those who have experienced this type of system. In the United States that applies only to those whose sole health insurance is Medicare with no supplements.

The reality is that the semantics are all wrong. No nation in the world has a system of "health care." The systems are all intended to provide "sickness care." Since the real game is sickness care, the costs will always be open ended. As the technologies of medical care expand, the costs will increase, and as the population ages, the costs will grow further. The only real control on costs in the sickness industry is some form of rationing. The labels used don't matter, whether they are "experimental," "not covered in this plan," or "not supported by cost-benefit outcome analyses." The labels are limited only by the imaginations of plan designers.

Rationing will lead to dissatisfaction, which will increase political pressure.

Some benefits will be extended, and a two-tiered system—much like the one in England—will develop.

As a retired physician, I am covered by Medicare. To my amazement and chagrin, one practitioner dismissed me because of my coverage. I find that getting care in an appropriate timeframe based on my own up-to-date clinical knowledge is nearly impossible.

The only hope of real preventive control of medical costs is the implementation of true "health care" with its teaching of how to get and stay healthy. Teaching true health care and then rewarding such a lifestyle in a manner that motivates is the only hope of reducing the costs of medical care. Why no one speaks to that as a solution I cannot understand!

I agree that federalized medical coverage will occur, but I don't believe those covered by that system will like it after the first five years. If I were still in practice I would try to get the federal government to cover my malpractice since those costs will remain high and my income would fall under a federalized medical care system.

If any readers are interested, an article I have written exploring these issues in greater detail can be found at [www.cancerlynx.com/healthgame.html](http://www.cancerlynx.com/healthgame.html).

MICHAEL J. MCKEOWN '61  
HILLSBORO, OREGON

### A Call to Action

Congratulations on another excellent issue of the *Bulletin*. The superb articles on health-care coverage in the Autumn 2005 issue will serve, I hope, as a catalyst for physician action to help improve our nation's health care—not an easy goal.

WALTER GURALNICK, DMD  
BOSTON, MASSACHUSETTS

*The Bulletin welcomes letters to the editor. Please send letters by mail (Harvard Medical Alumni Bulletin, 25 Shattuck Street, Boston, Massachusetts 02115); fax (617-384-8901); or email ([bulletin@hms.harvard.edu](mailto:bulletin@hms.harvard.edu)). Letters may be edited for length or clarity.*

## The Envelope, Please

ON THE 54TH ANNUAL MATCH DAY, 152 HMS FOURTH-YEARS DISCOVERED WHERE THEY WILL undertake their residencies. Almost half of the students will remain in Massachusetts, with another 17 percent heading to California and 9 percent to New York. Forty-six percent of the residencies will be in primary care, most of which are in internal medicine. The second most popular residency was pediatrics, which 11 percent of the graduates will be entering. Compared to last year's fourth-years, emergency medicine, family practice, and general surgery all saw decreases in the number of residencies while radiation oncology and urology saw increases.



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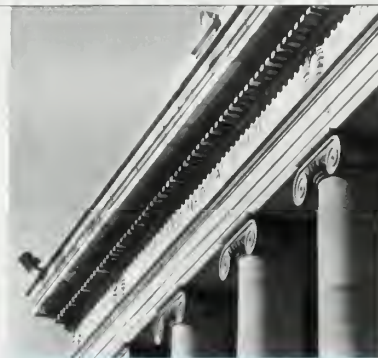
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**Birthday Bash**

HMS alumni and faculty are invited to three scientific symposia celebrating the centennial of the School's Longwood Quadrangle. The symposia, scheduled for September 21 and 22, will highlight research on the brain, molecular and cellular bases of infection, and cancer genetics and gene-based drug discovery. To learn more, visit <http://hms.harvard.edu/public/cent/index.html>.

**Top of the Heap**

Harvard Medical School has again taken the lead spot in *U.S. News & World Report's* annual listing of the nation's outstanding graduate schools, attaining an overall perfect score and placing first among the nation's medical schools in the research category. Following HMS in the top five were Johns Hopkins, the University of Pennsylvania, the University of California—San Francisco, and Washington University.

**Six of One**

Advances in cancer nanotechnology will be the focus of the Sixth Annual Hollis L. Albright, M.D. '31 Symposium, slated for 4:30 p.m. on October 5 in the New Research Building, 77 Avenue Louis Pasteur, Boston. Featured speakers will include Judah Folkman '57, the Julia Dyckman Andrus Professor of Pediatric Surgery at HMS, and Robert Langer, institute professor at MIT. For more information, call 617-384-8469 or email [events@hms.harvard.edu](mailto:events@hms.harvard.edu).

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# PRESIDENT'S REPORT



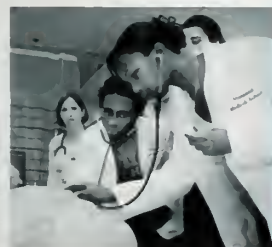
## Innovations on Tradition

**G** RIM WINTRY WEATHER NOTWITHSTANDING, AN overflow crowd filled the tent on Alumni Day to hear inspiring personal stories from four Harvard Medical School-affiliated Nobel laureates—David Hubel, Bernard Lown, Joseph Murray '43B, and Thomas Weller '40. A forthcoming issue of the *Bulletin* will report in more detail on this fascinating session. As a warm-up act, the attendees heard highlights of the Alumni Council's activities during the past year, a period of both transition and progress.

George Thibault '69 faced the challenge of following a legend, Dan Federman '53, as director of alumni relations. Undaunted, George plunged into his new role with energy, insight, and a commitment to work closely with HMS alumni. Now that the staff members of the alumni office share space in the Landmark Center (the old Sears Building) with staff of the Office of Resource Development and the *Bulletin*, George has

Dean Joseph Martin pledged that if unrestricted alumni giving—the Harvard Medical Alumni Fund—increased by more than \$70,000, we could eliminate the need for parental contributions for families whose incomes fall below \$40,000 annually. Well, we beat that target with much to spare. The 2006 campaign has already raised \$1,375,000, compared with \$780,000 in 2005. This means that an estimated 20 entering medical students will not need to ask their low-income families to support their education. A forthcoming *Bulletin* article will chronicle the impact of debt on students'—and alumni's—lives and careers.

The Council intends to continue working with Dean Martin on ways to improve this situation. It will also seek to link HMS alumni with the superb continuing medical education opportunities that Harvard offers in Boston, throughout the country, and online. The Council will probe the increasingly sophisticated database of the university's alumni office to offer HMS alumni the capabilities of contacting classmates



This fall HMS will launch a curricular reform for both the preclinical and clinical years. Hundreds of faculty members have participated in the planning for this reform.

been proposing ways to take advantage of this proximity to communicate more effectively with HMS alumni.

Another important transition is the well-publicized stepping down of Harvard President Larry Summers and the resultant uncertainty about the pace of development of the new facilities in Allston, the timing of Harvard's next major fundraising campaign, and the status of proposed new university-wide initiatives in biomedical research.

I am pleased to report that the *Bulletin* has won yet another honor—a gold medal from the Council for Advancement and Support of Education in the special constituency magazine category. The judges noted that the *Bulletin* was “far and away the gold-medal winner in terms of splendid writing and elegant design. The writing consistently captures tangible, personal aspects of difficult stories.” Congratulations not only to editor-in-chief Bill Bennett '68, editor Paula Byron, associate editor Ann Marie Menting, and assistant editor Janice O'Leary, but also to the alumni, faculty, and student authors who are the *Bulletin's* principal contributors.

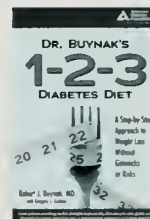
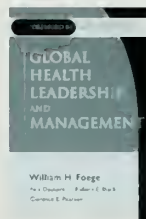
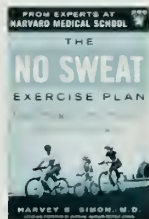
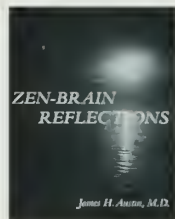
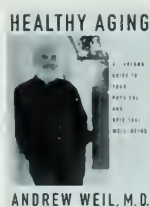
We have good news to report about student indebtedness. As you may recall from the Winter 2006 issue of the *Bulletin*,

and other colleagues, to learn more about the myriad activities at HMS, and to foster mentoring opportunities for graduates who choose not to remain in the Boston area.

Finally, under the leadership of Jules Dienstag, the dean for medical education, and with the strong support of Dean Martin, this fall HMS will launch a curricular reform for both the preclinical and clinical years. Hundreds of faculty members have participated in the planning for this reform, which the medical students view with enthusiasm.

As you will learn in the upcoming accounts by Harvard Medical School's Nobel laureates, their experiences as medical students were formative in helping them develop intellectual curiosity, set standards of excellence, foster independent thinking, and work collaboratively with colleagues. Few of us will get the call from Sweden, but we have all benefited from those same experiences. ■

Steven A. Schroeder '64 is a distinguished professor of health and health care in the Department of Medicine at the University of California at San Francisco, where he also directs the Smoking Cessation Leadership Center. He can be reached at [schroeder@medicine.ucsf.edu](mailto:schroeder@medicine.ucsf.edu).



## Healthy Aging

*A Lifelong Guide to Your Physical and Spiritual Well-Being*, by Andrew Weil '68 (Knopf, 2006)

Although aging is an irreversible process, Weil says we can do a great deal to keep our minds and bodies in top working order. He discusses the science of aging and recommends an anti-inflammatory diet to protect the immune system and enhance adaptation to the body's changes. He also coaches readers on stress management and exercise.

## Zen-Brain Reflections

*Reviewing Recent Developments in Meditation and States of Consciousness*, by James H. Austin '48 (MIT Press, 2006)

In his second book on the links between meditation and neurology, Austin reviews the latest studies on the regions of the brain that transform with meditation and explores how imaging methods can better monitor the effects of meditation. A clinical neurologist and Zen practitioner, the author also discusses altered states of consciousness and how Zen meditation can help illuminate neuroscience.

## The No Sweat Exercise Plan

*Lose Weight, Get Healthy, and Live Longer*, by Harvey B. Simon '67 (McGraw-Hill, 2006)

The author, once an advocate for intense aerobic exercise as the only way to stay

well, recants and here urges readers to reap the benefits of exercise by modifying their daily routines. He offers a point system—a half hour of dusting equals 75 points and a half hour of golfing equals 145 points—to quantify activities that promote better health and help shed pounds.

## Global Health Leadership and Management

edited by William H. Foege, Nils Daulaire '76, Robert E. Black, and Clarence E. Pearson (Jossey-Bass, 2005)

This book looks to the success of the for-profit management world for models on how to return the investment of public health efforts as measured by morbidity and mortality. Contributors to this book point out that although science is essential to solving global health crises, science alone is not enough. The book uses lessons learned through immunization programs and new approaches to the HIV/AIDS epidemic.

## Dr. Buynak's 1-2-3 Diabetes Diet

*A Step-by-Step Approach to Weight Loss Without Gimmicks or Risks*, by Robert J. Buynak '95 with Gregory L. Guthrie (American Diabetes Association, 2006)

This guide encourages those with type 2 diabetes to control their blood sugar levels by making smarter food and exercise choices. The author includes a food diary, a case study, and chapters on reading food labels and calorie counting. Helpful

hints for sticking with new diet and exercise regimens round out the book.

## Every Mother Is a Daughter

*The Neverending Quest for Success, Inner Peace, and a Really Clean Kitchen*, by Perri Klass '86 and Sheila Solomon Klass (Ballantine Books, 2006)

This volume is part memoir, part travelogue, and part conversation between the mother and daughter coauthors. It's filled with admissions that reveal their similarities—such as a shared disdain for suburban New Jersey—and their differences—an unswept doorstep that niggles at Sheila doesn't even register with Perri. The authors alternate their commentary on such topics as childbirth, careers, vanity, and India.

## 50 Years Out

*Physicians Reflect on Our Times*, edited by Fritz Loewenstein '53, A. Scott Earle '53, and Donald N. Wysham '53 (Hollis Publishing, 2006)

Twenty-two members of the HMS Class of 1953 have written thoughtful essays for this collection on topics ranging from Iraq to malpractice to aging. One physician muses on the resilience of the abused dogs he volunteers to care for at a shelter, another chronicles the surprising results from his research on the mother-infant bond in East African populations, and yet another compares doctors nearing retirement to Prospero in Shakespeare's *The Tempest*.



## The Denial of Aging

*Perpetual Youth, Eternal Life, and Other Dangerous Fantasies*, by Muriel R. Gillick '78 (Harvard University Press, 2006)

MY GREAT UNCLE MORRIS TURNED 96 RECENTLY. HE STILL TAKES the bus to Shreveport, Louisiana, to play craps, and could dominate the Texas Hold 'Em table if tremor didn't make holding a hand so hard, which is good luck for the other players. Last week, he called the only doctor in the family—a psychiatrist—for an emergency urological consultation. He had just been told he had a PSA of 11. He thought he might have cancer.

I happened to be reading *The Denial of Aging: Perpetual Youth, Eternal Life, and Other Dangerous Fantasies* when he called. I was in the middle of a sentence, one of many I would like to read out loud to everyone who is elderly or loves someone who is old—an inclusive population. “The truth is,” I was reading, “that at the very end of life, death is no longer an ‘alternative.’” The author, Muriel Gillick '78, had just pointed out that screening for prostate cancer in the elderly, instead of screening for poor hearing or poor balance, is “vainly trying to stave off the wrong conditions.” Uncle Morris has poor hearing and poor balance. He has never called me to say they've been tested or treated. Why wasn't his doctor worrying about them? Why wasn't Uncle Morris?

This energetic book believes it knows why. Acoustics and balance are small change when you are fighting to the death with death itself. We are driven by the uncontrollable (though understandable) urge for self-preservation and remain convinced that “the secret weapon against illness is prevention.” This being America, of course, no one expects eternal good health for free; we're not unreasonable. We know we need to earn it. So we pay top dollar for diets and supplements, annual batteries of blood tests, comprehensive exams for old men, and mammograms for elderly women. But then—as if life were contractual—we expect delivery of perpetual youth. As Gillick explains, “in keeping with the belief that we can control our destiny, we believe we will succeed.”

Yet prevention “takes on a new meaning in old age,” because, even in America, old age cannot be prevented. Inevitable chronic illnesses need management instead of aggressive intervention, “watchful waiting” instead of revolv-

ing hospital admissions, less technology, more kindness, and an end to denial. “Pneumonia,” Gillick writes with shocking good sense, “can be the old person's best friend.”

Gillick is unafraid of a solid nine rounds in the ring. She jabs at Medicare first. It certainly makes sense (though apparently not to the government) that three different 70-year-old men might need three different levels of health care. Benefits should be assigned on the basis of health status and not birth date, she argues. We ought to have one Medicare for “robust older people” (this might cover their glasses and hearing aids, dentures, and drugs); a second Medicare for those with multiple chronic

diseases; and a third for hospice-associated palliative care. Her reasoning is so efficient and well placed, and she illustrates it so well with cases, that by the end of the chapter, Medicare can only limp back to its corner.

Next Gillick spars with traditional nursing homes—but not for the reason most critics take them to task. She has no complaints about slovenly substandard care; in fact, “some have claimed that the only industry...more tightly regulated in America than nursing homes is the nuclear power industry.” Standardization has taken priority over quality of life—the preoccupation is with safety (and generic measurements) rather than with such needs as comfort and companionship.

Even assisted living facilities, popularly viewed as a graceful solution for those who can afford them, take their pounding. In her view, they are uncreative environments, ill equipped to handle physical impairments or dementia. Old people deserve better.

Instead, Gillick suggests that assisted living and nursing home care should be variants of a single model, points of extrapolation along a single line according to increasing need. Three levels of comprehensive long-term care could be paid for by one source. Her detailed descriptions are dazzling in their sensibleness.

This is the informed, compassionate, realistic gerontologist you want for your grandmother, your mother, and eventually—if she is not too old by then—yourself. At the end of her book, Gillick allows herself a social commentary on the meaningful life. “The idea that it's fine [for the elderly] to stop giving and...start taking,” she writes, “is like advocating an all-dessert diet.” Live better by taking less and giving more. Certainly. But no matter what you do, you won't live forever. ■

*Elissa Ely '88 is a psychiatrist at the Massachusetts Mental Health Center.*



## Attention, Shoppers

**S**HOPPING. IT CAN BE A BALM, A curse, an entertainment, even a sport. Over the years marketers have spent billions trying to understand the prompts to shop. But how humans decide what to put in their carts, bags, or driveways may now be a bit clearer thanks to recent research involving some cousins to our species.

In a study that posed a neurobiological question in the language of economic theory, HMS researchers have found neurons that appear to process subjective choices in monkeys.

"We're often told we can't compare apples and oranges, but truly we do it all the time," says Camillo Padoa-Schioppa, an HMS neurobiology research fellow and first author on the study, published in the April 23 issue of *Nature*. "Behavioral evidence suggests that choice results from two distinct processes. First, you assign values to the available options, and then you make a decision based on those values.

"We've long known that different neurons in various parts of the brain respond to separate attributes, such as quantity, color, and taste. But when we make a choice, for example, between different foods, we combine all these attributes—we assign a value to each available item. The neurons we've identified encode the value individuals assign to the available items when they make choices based on subjective preferences, a behavior called 'economic choice.'"

Our lives are filled with choices great and small: work without breaks or punctuate our lives with periods of vacation and relaxation, invest in stocks or put our money in bonds, choose the chicken

burrito or the one with only beans and cheese. The behavior behind our making such choices has been fodder for much study by economists and psychologists. Some of the more perplexing findings have come from behavioral economics

rons of two monkeys, male and female, and correlated that activity with the animals' behavior. In each session, the monkeys chose between varying amounts of different beverages, including grape juice, apple juice, peppermint tea, diluted cran-

berry juice, lemonade, and fruit punch. They selected their juices by looking at representative squares on a computer screen. The scientists identified dedicated neurons in the orbitofrontal cortex (OFC), located above the eyeballs, that appeared to assign a value to each beverage based on quality and quantity. "They kick in right away," Padoa-Schioppa says, "most prominently when presented with an offer."

As the researchers watched the monkeys' behavior, they observed tradeoffs between juice type and juice quality. A monkey might choose grape juice when one or two drops of apple juice are available. But the monkey may also show no real preference when instead offered one drop of grape juice and three drops of apple juice. Or, the animal might always choose apple juice whenever four or more drops of it were made available. Such behavior indicates that the value the monkey assigns to one drop of

grape juice is roughly equal to the value the monkey places on three drops of apple juice.

On the basis of such choice patterns, Padoa-Schioppa and Assad correlated the activity of neurons in the OFC with the values assigned to the two juices. Low activity in one neuron might be all that registers when the monkey chooses one drop of grape juice or three drops of apple juice. Medium-high activity might be measured in the same neuron when



research showing that people's choices often violate the rules of economic rationality. In their efforts to tease out the reasons behind such results, scientists have begun to probe the neural bases of economic choice. It is to this emerging field of "neuroeconomics" that the research of Padoa-Schioppa and colleague John Assad, an HMS associate professor of neurobiology, is contributing.

For the study, the two researchers recorded the electrical activity of 931 neu-



## Perchance to Dream

**G**ETTING THE RIGHT amount of shut eye can be difficult when responsi-

bilities are many, days run long, and minds bail with thought even when the body slips to horizontal. Resting and recharging become less possible when slumber is relegated to off hours, time periods that do not synchronize with those encouraged by the body's circadian cycle.

Rejuvenating slumber may now be more than just a dream for those who are sleep-challenged. Research by a team of scientists in the Division of Sleep Medicine at Brigham and Women's Hospital has shown that melatonin, taken orally during nontypical sleep times, not only can help people fall asleep but can also help them slumber soundly. The team, which includes senior scientist Charles Czeisler, chief of the Division of Sleep Medicine, reported its findings in the May 1 issue of *Sleep*.

The hormone melatonin definitely likes the nightlife. It is produced only during darkness; bright light hitting the eye's retina acts as a signal to stop its production. In humans, this cyclic secretion of endogenously produced melatonin serves to mark phases for the suprachiasmatic nucleus, a bundle of neurons in the hypothalamus that acts as the body's internal clock. Boosting endogenous melatonin with pharmacologic doses has been shown to shift circadian phases in humans, a characteristic that has led millions of people to take supplements in the hope of improving their sleep.

The Division of Sleep Medicine team designed a study to assess melatonin's effects on slumber. They enlisted 36 men and women between the ages of 18 and 30 in a two-month study. First, participants spent three weeks distancing themselves from

substances that could affect sleep—caffeine, nicotine, alcohol, and prescription and non-prescription medications. The researchers then sequestered each participant in a sound-proof suite free of time clues.

After three days and nights of traditional sleep schedules, the researchers placed the participants on a three-week regimen that shifted their sleep pattern to a 20-hour sleep-wake schedule, one that mimicked what a person traveling eastward through four time zones every day would experience. During those three weeks, participants received a placebo, a 0.3-milligram dose of melatonin, or a 5-milligram dose of the hormone 30 minutes before retiring. The differing doses were used only as comparisons to the placebo.

The researchers found that during the 6-hour, 40-minute sleep periods, the participants who took melatonin slept more than those who took the placebo—up to 84 percent of the time allotted versus 77 percent in the placebo group. Participants' sleep efficiency did not differ, however, during times when melatonin was being produced in the body.

"Melatonin enabled participants to obtain an extra half hour of sleep during the day, at a time when they were not producing melatonin themselves," says Czeisler, "but it did not help them sleep at night, when their bodies were producing the hormone. This finding has implications for millions of people who attempt to sleep at times that are out of sync with the brain's internal clock." ■

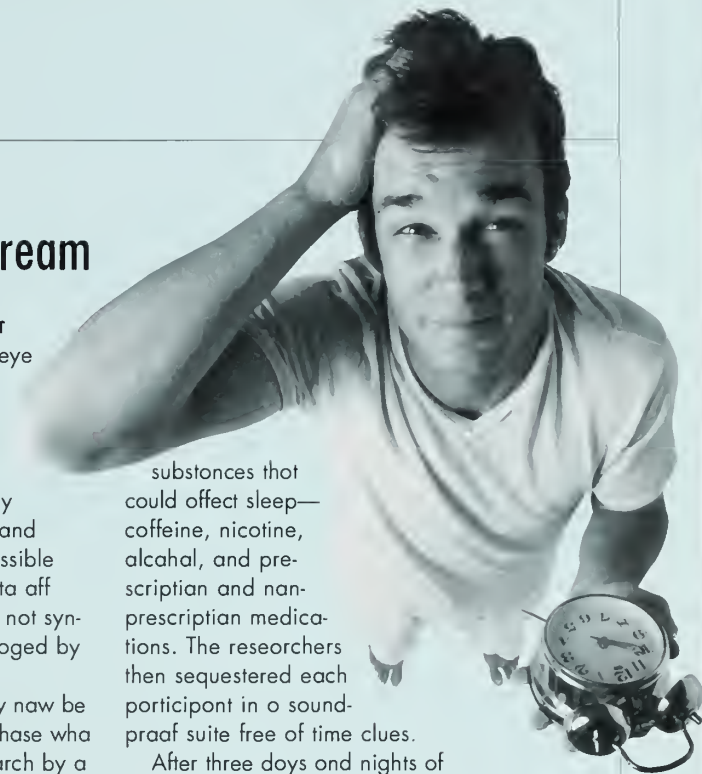
the monkey chooses two drops of grape juice or six drops of apple juice. The same neuron might show high activity when the monkey selects three drops of grape juice or ten drops of apple juice. Such results mean that the activity of the neuron, and its cousins in the OFC, encodes the value chosen by the monkey independent of the physical characteristics—such as taste and quality—of the beverage.

In the key finding, another group of neurons in the same area encodes the value of only one of the two juices offered to the monkey. Some neurons encoded the value of the grape juice while others encoded the value of the apple juice.

An important aspect of the results is that neurons in the OFC encode the economic value of the offered and chosen juice independent of the particular way the beverage is offered and independent of the specific action the animal uses to signal its choice. "This suggests," Padoa-Schioppa says, "that economic choice is, at its essence, a choice between goods as opposed to a choice between actions—such as reaching to the right to take the apple or to the left to take the orange."

"We have a pretty good idea of how the brain handles the incoming sensory information and, on the output side, of how the brain controls movements we make to execute our choices," says Assad. "We found a part of the brain that seems to be involved in governing decision-making."

The neural mechanisms for decision-making may also provide insight into certain psychiatric disturbances, such as addictions. People with lesions in the OFC, the researchers say, often show aberrations in choice behavior. ■





## The Mettle of Gold

**F**ROM ANCIENT TIMES, GOLD HAS been the most prized of metals, yet in the medical realm, it has endured a lowly status.

Although gold has occasionally been used to treat ailments such as heart disease, syphilis, and alcoholism, most physicians deemed it useless—except perhaps to “soothe an itchy palm” or as “an antidote to poverty.” The metal gained some scientific luster in 1929, when a dashing young Frenchman, Jacques Forestier, began giving gold salts to his rheumatoid arthritis patients. News spread of the therapy’s success. Twenty years later, his work was upstaged by research on pioneering—and, it would later turn out, Nobel Prize-winning—work on the use of cortisone in rheumatoid arthritis.

Forestier’s therapy had something else going against it—no one had been able to figure out exactly how gold worked to alleviate rheumatoid arthritis.

Now, Brian DeDecker, Stephen De Wall, and their colleagues at HMS report in the February 27 issue of *Nature Chemical Biology* that they have found an answer, one that could enhance gold’s reputation in medicine. More than that, the discovery could lead to a safer, more effective version of gold therapy.

“Gold is still widely used in some countries, such as India,” says Timothy Mitchison, the Hasib Sabbagh Professor of Systems Biology and a coauthor on the study. “It works. The main problem is its side effects. Given our new hypothesis for a gold mechanism, it might be possible to do something about those side effects.”

### Raising the Gold Standard

Like other autoimmune diseases, rheumatoid arthritis occurs when the cells of the immune system begin attacking the body’s own tissues, in this case the delicate synovial membrane lining the joints. Researchers still do not know what exactly provokes this attack, but it is thought to involve the major histocom-

patibility complex (MHC) class II proteins. Normally, these proteins sit on the surface of a special class of immune cell, holding bits of foreign protein in their grip. This MHC class II-peptide complex is seen by other immune cells, which then launch an attack on cells bearing that same complex. DeDecker and De Wall, HMS research fellows in cell biology, and their colleagues found that gold, along with other precious metals such as platinum, frees peptides from the grip of the MHC class II proteins, essentially disarming the immune response.

It is not clear what peptides might be pushed out by gold therapy in actual rheumatoid arthritis patients, largely because of the mystery surrounding the

disease. One possibility is that these peptides are bloodborne bacterial or viral antigens that have become trapped in the joint. Another is that these compounds are foreign antigens that closely mimic host peptides, confusing the immune system and turning it against native antigens.

Nor is it clear how, exactly, gold frees the putative antigen from MHC class II’s grip. The researchers, who conducted their experiments at the School’s Institute of Chemistry and Cell Biology (ICCB), have evidence that it may work by subtly changing the shape of the MHC class II proteins.

DeDecker and De Wall were not looking for gold when they began their study; they were chasing the dream of

“Gold works. The main problem is its side effects. Given our new hypothesis for a gold mechanism, it might be possible to do something about those side effects.”





## Research Digest



the late Harvard University structural biologist Don Wiley, who had made the first crystal structure of an MHC class II-peptide complex. Wiley invited DeDecker and De Wall to help him knock those peptides out.

The researchers spent the next eight months setting up the cleanest assay they could devise. With help from Stephen Harrison, HMS professor of biological chemistry and molecular pharmacology, they began screening tens of thousands of compounds in the ICCB library. They got no hits. The pair decided to screen about 600 FDA approved drugs and got two solid hits—a pair of anticancer drugs, cisplatin and carboplatin, both of which happen to be metals.

At first, DeDecker felt disappointed until De Wall pointed out that these types of compounds are used therapeutically for rheumatoid arthritis. The duo decided to test the drugs' mettle. Normally, MHC class II proteins exchange peptides with the aid of a catalyst, HLA DM. In their original screen, they had included HLA DM along with MHC class II and a human leukocyte antigen. This time, they left HLA DM out. The platinum-based drugs still knocked the peptide off. Other tests showed that only gold and palladium exhibited the same peptide-releasing powers as platinum.

Meanwhile, at the University of Massachusetts Medical School, scientists had created an antibody for peptide-free MHC class II protein. It turned out the metal-MHC complex bound the antibody, suggesting the metal was keeping MHC class II free of peptide.

The researchers are cautiously optimistic about the prospects of a revival of gold's use in medicine and the development of less toxic therapies. "Academic and industry groups have shown a lot of interest," Mitchison says. ■

Misia Landau is the senior science writer for Focus.

### ■ SUDDEN DEATH OVER TIME

Experiencing a sudden cardiac death during exercise is less of a risk for women who engage in two or more hours of moderate to vigorous activity each week—jogging, running, biking, swimming laps, or playing tennis or squash—than it is for women who exercise at these levels less than two hours per week. This finding, from a two-decade study of 85,000 participants in the Nurses' Health Studies at Brigham and Women's Hospital, indicates that regular, moderate to vigorous exertion benefits women, says lead researcher, Christine Albert, director of the hospital's Center for Arrhythmia Prevention and an assistant professor of medicine at HMS. The research appeared March 22 in the early-release issue of the *Journal of the American Medical Association*.

### ■ NATURE WINS OUT

A possible genetic link to binge eating disorder has been found by researchers at McLean Hospital. In the March 6 issue of *Archives of General Psychiatry*, lead author James Hudson, HMS professor of psychiatry at McLean, reports that family members of obese people with binge eating disorder were twice as likely to manifest the disorder when compared with family members of obese people without the condition. Individuals with the disorder, which affects between one and five percent of the U.S. population, have uncontrolled eating binges at least twice a week for a minimum of six months. Hudson hopes this finding will spur the development of specific treatments for the condition.

### ■ SWEETNESS AND LIGHT

Other things remaining equal, the substitution of noncaloric beverages for sugar-sweetened ones can markedly decrease body mass indexes in teens. Children's Hospital Boston pediatric researchers Cora Ebbeling, an HMS assistant professor, and David Ludwig, an HMS associate professor, enrolled 103 people aged 13 to 18 in a six-month study testing the weight-related effects of sugary versus non-sugary beverage consumption. Half the group received weekly home deliveries of bottled waters and artificially sweetened drinks; the remaining teens served as a control group. When the study ended, researchers found that heavier teens in the group avoiding sugary drinks lost weight while similar teens in the control group had slight increases in weight. A group-to-group comparison showed a difference of almost one pound each month. The findings appear in the March issue of *Pediatrics*.

### ■ NATURAL BORN KILLERS

Asthma sufferers become breathless when their lungs' airways constrict, a response long attributed solely to the activities of type 2 helper cells. Recently, scientists at Children's Hospital Boston looked at cells from the lungs of patients with moderate to severe asthma and discovered that airway tightening in more than half the participants was triggered by different cells: natural killer T<sub>s</sub> (NKTs). Unlike the helper cells, NKTs are activated by glycolipids, which resist the action of corticosteroids typically used to treat asthma. Lead author Dole Umetsu, Prince Turki Bin Abdul Aziz Al-Soud Professor of Pediatrics at HMS, reports the findings in the March 16 issue of the *New England Journal of Medicine*.

# The Seven { DEADLY } Sins

MEDICINE HAS ONLY A LITTLE TO offer sinners. For those who wish to wallow in sin, physicians can prescribe Viagra to facilitate lust, Ambien to foster sloth, or Prozac to boost pride. Antidotes to sin are less effective: appetite suppressants for gluttony or beta-blockers for wrath. The treatments for envy and greed remain the purview of the clergy.

Patients today should, nevertheless, feel blessed. In the medieval tradition, each sin warranted its particular punishment in the next life rather than a prescription in this. Those who had succumbed to lust were smothered in fire and brimstone; gluttons choked down rats, toads, and snakes; the greedy were boiled in the finest oil. The slothful were pitched into snake pits, while dismemberment awaited the wrathful. The envious faced submersion in freezing water, and the prideful were broken on the wheel.

In these pages our physician authors seek not to cure their patients of sin but to explore the roles that the seven deadly sins have played in their own professional and personal lives.



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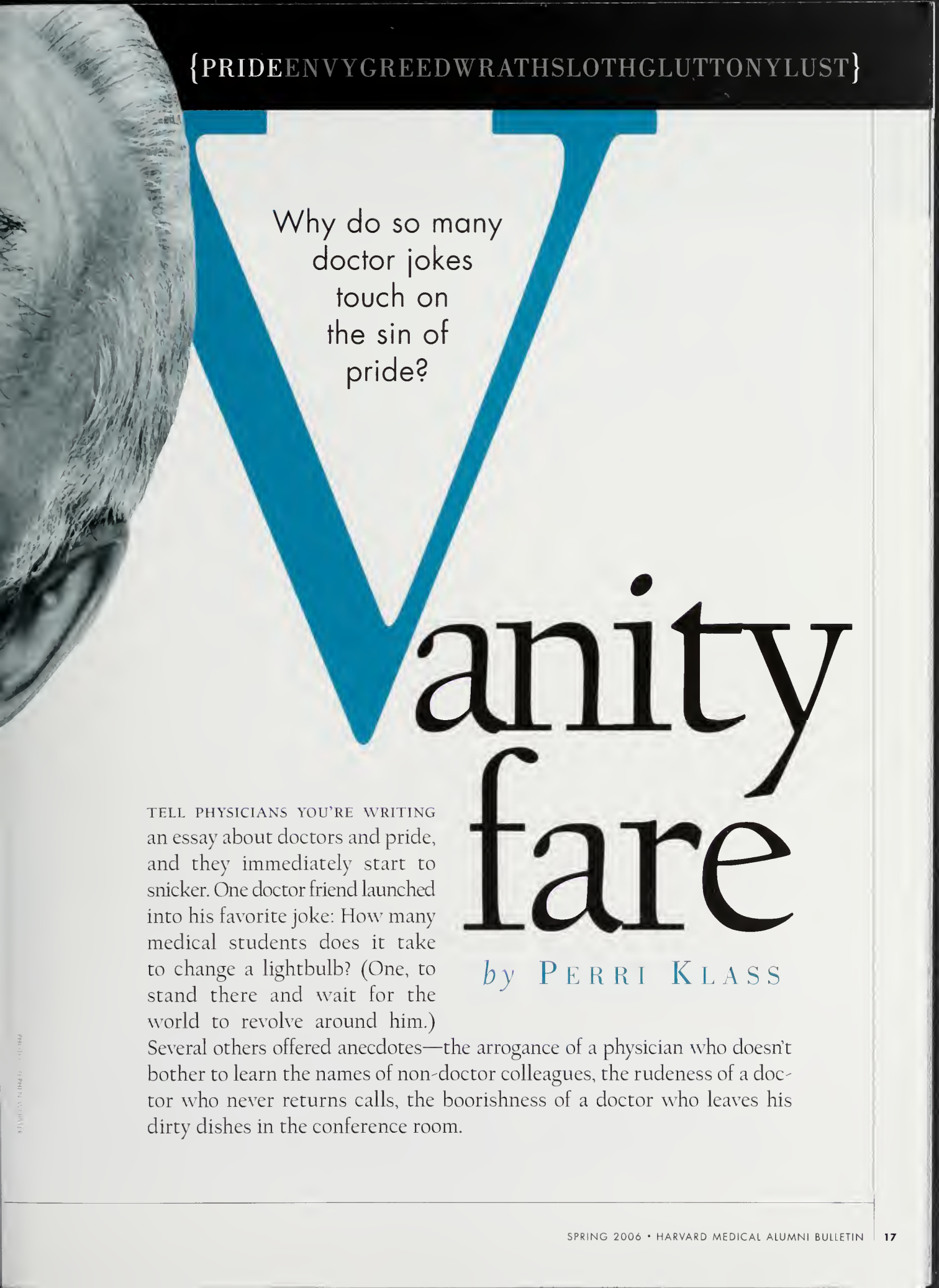
pride

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Why do so many  
doctor jokes  
touch on  
the sin of  
pride?

# anity fare

TELL PHYSICIANS YOU'RE WRITING an essay about doctors and pride, and they immediately start to snicker. One doctor friend launched into his favorite joke: How many medical students does it take to change a lightbulb? (One, to stand there and wait for the world to revolve around him.)

Several others offered anecdotes—the arrogance of a physician who doesn't bother to learn the names of non-doctor colleagues, the rudeness of a doctor who never returns calls, the boorishness of a doctor who leaves his dirty dishes in the conference room.

by **PERRI KLASS**

# How does pride show up? I remember my first beeper and how I wore it, ostentatiously, at parties, and gestured toward it, occasionally, in restaurants, to explain why I wasn't ordering wine.

I protested, a little weakly, that character is more complicated than that. Those doctors may simply be plagued with a weak memory, or poor social skills, or bad manners; it wasn't fair to interpret everything as just more evidence of the massive medical ego. But these were all doctors telling the stories, and, truth be told, they were more than a little self-satisfied in the telling—they were, each and every one of them, profoundly *proud* of having a keen eye for overly arrogant colleagues.

The issue of pride—and the perception of pride—permeates medical practice. You could call it doctors' besetting sin. It's part of almost every cliché about our behavior—and misbehavior. I can think of two jokes right this minute about doctors and our overweening pride—one is completely unprintable, while the other opens with a fellow making it up to heaven. While the recently deceased is standing at the Pearly Gates, St. Peter points out a bearded gentleman strolling by in a long white coat. "Look!" St. Peter says. "There goes God. Sometimes he just likes to play doctor."

During medical school, I started writing about my training. I could not, of course, make myself out to be the dramatic hero of my own story, for the very good reason that my ignorance of medicine generally made me the least useful person in any clinical situation. And yet somehow, over and over again, I found myself in a starring role in my narratives. I would tell stories about doctors—yes, more senior, more highly trained clinicians, people who actually knew what to do with a sick patient—who were still, somehow, insufficiently sensitive to pick up all the nuances and emotional intricacies that I, the medical student, could so clearly understand. Many of my best stories poked fun at more senior doctors who were a bit too arrogant, more than a little too full of themselves.

A resident on one clinical rotation taught our whole team the fine art of distracting an attending during rounds by leading him, with gentle flattery, into expounding on his own pet subject for the entire hour. All it took was a comment about what a wonderful opportunity it was for medical students to hear about this or that from such an eminent authority. And we all got to rest and relax—no tricky questions about the patients, no chance of discovering that we had not actually read up on the assigned subject from yesterday. Imagine my surprise, now as an attending, to realize my own vulnerability to the same tactic: Simply whisper that it would be an honor and a privilege to hear me ride my own hobbyhorse or talk about myself, and I will happily abandon other subjects and oblige. After all, what could possibly be more riveting for medical students? In fact, for everyone!

## Here Comes the Pride

Pride doesn't always carry a negative connotation, of course; pride can mean a rightful and proper joy in your own prowess or accomplishment—or in that of someone you care about. Look at parents on graduation day and you'll see pride as a positive and rewarding force, or at least as a forgivable glow that burnishes certain occasions. As a resident in pediatrics, I took a real and reasonable pride in my hard-won ability to get a line into a dehydrated child. (Of course, when I call such skills hard won, they were hardest won by the patients, the children on whom I practiced. In pediatrics, at least, pride of prowess is often accompanied by the guilt of knowing you have inflicted pain on a child.)

As residents, we told humorous stories about high-ticket, entitled families who turned up in the emergency room demanding to have a

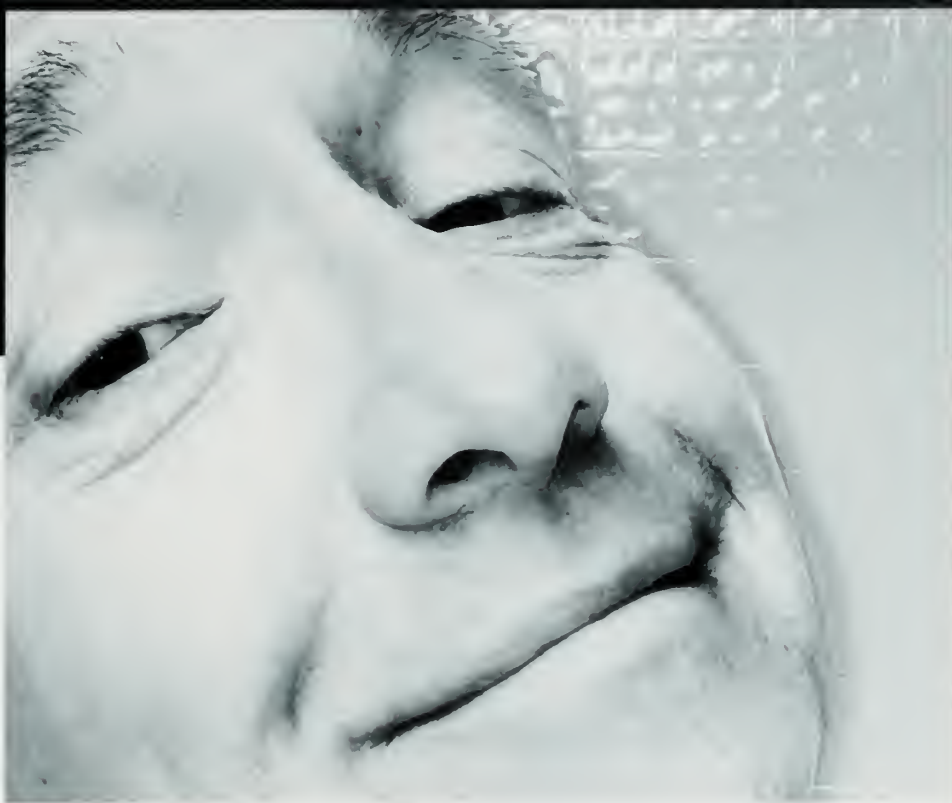
child's blood test drawn by the department chairman (who probably hadn't done much scut recently) or refusing to let a lowly intern stitch up a laceration. We knew we were the front-line people; we knew that in certain situations, we had made that important journey from initial fear and cluelessness to appropriately anxious skill. But of course, we also knew—as residents always know—that we were only residents, by definition beginners, unproven, not quite ready to be allowed out on our own.

One medical school classmate told me that, looking back, he suspects he was a much better doctor as a resident precisely because he was so anxious all the time, so deeply aware of the limitations of his own skill and knowledge. Once you start to believe in yourself, he says, especially once you start to believe your patients when they tell you what a good doctor you are, then the pride hyperinflates and you lose touch with reality. He offered to direct me to studies that have shown that patients' estimates of their doctors' skills rarely correlate with outcomes. I did not, however, want to introduce anything that smacked even faintly of evidence-based medicine into a discussion of medical egos, a topic that seems better suited for a kind of folkloric, if not operatic, approach.

## Bonfire of the Vanities

How does pride show up? Oh, let me count the ways! I remember my first beeper and how I wore it, ostentatiously, at parties, and gestured toward it, occasionally, in restaurants, to explain why I wasn't ordering wine. And when it went off, I assumed that everyone around me was deeply impressed by this evidence of my importance—no doubt someone somewhere is very sick, I imagined them all thinking;





it's a good thing they could reach the doctor! Over the years, of course, my feelings changed; for one thing, many of my less savory adolescent patients carried beepers—at least back before cell phones—and for another, the chirp of the on-call beeper became just another dreaded interruption to family life.

As a primary care provider, I have taken tremendous pride in my long-term relationships with children and families. One delightful little girl became my signature patient. I had met her my first month at the health center, when she was a newborn. I took wonderful care of her as she was growing up, it seemed to me, and I regarded her as a living record of my time at the health center. Here she was, five years old—I had been in this job five years! I always asked for details about school; I boasted when she was placed in an advanced program; I bonded with her mother. I was part of her family, I felt, and everyone could recognize our connection whenever she came in for a checkup and ran to hug me.

Then, when the girl was eight, I discovered I had been pronouncing her name wrong the whole time. I asked her mother why she had never corrected me. She just shrugged, as if to say, who can correct a doctor? I guess the lesson I learned was that yes, a rightful and proper pride can come with knowing a patient and caring about the patient—but only if I actually take the time and trouble to pay attention to the patient, rather than to the drama of my own sensitivity.

And yes, of course, a rightful and proper pride can come with being the one who makes the difficult diagnosis, figures out the clinical puzzle. But many dangers come wrapped up in that pride—the danger of being thrilled with your own acumen in making a diagnosis that is actually terrible news for the patient, the dan-

ger of losing sight of the patient altogether as you pursue the fascinoma, or, once again, the danger of beginning to think of yourself as the most important person in the story. I've done all those things, and I'm sure I'll do them all again.

### But Enough About Me

As sins go, pride is the big one, the original of originals, the source of all the others. According to Thomas Aquinas, who knew one deadly sin from another, "inordinate self-love is the cause of every sin." And why would that be? Because "the root of pride is found to consist in man not being, in some way, subject to God and His rule."

Hmmm—do you begin to see why medicine is saturated with issues involving pride? Doctors are steeped to our very core in trying to prevent, circumvent, and mitigate all the slings and arrows of outrageous fortune; we are the ones who think we can improve and even extend life. And, of course, sometimes we can. It's the privilege of the profession: the chance to make life better, ease pain, prevent complications, and sometimes even outwit death. And yes, of course we need to mix our sense of achievement with appropriate humility—because, after all, the house always wins in the end.

Somehow, though, being proud of your profession isn't really what people think of as sinful pride. Taking pride in something bigger than yourself—or in someone other than yourself—is not actually sinful; it's usually fine or good or even occasionally noble. It's perfectly reasonable to feel proud to see a patient live to enjoy another birthday or a graduation or a grandchild or a trip around the world.

The sin of pride, I suspect, lies in being so proud of yourself that you've left no room for anyone else—not colleagues, not even, in the end, patients. It's about losing track of all those other players in the glare of the spotlight that illuminates the single true star of the show and amplifies the din of thunderous applause. It's a profoundly insidious sin, since it's so easy to take pride in one's own humility, as I did when I was a medical student making fun of the arrogance of some attendings—or as I might be doing now, by pontificating at length, and in the first person, on the perils of placing oneself at the center of the story. ■

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by ELISSA ELY

ENVY SENT DOWN ITS UNNECESSARY ROOTS EARLY in a child who had many riches. But it was clear that other kids had more and better; simple possessions like two parents, or lavish possessions like two houses. One little girl's great-grandfather had invented the flush toilet; she had a spiral staircase in her bedroom, a sunken floor in her living room, and a movie crew for her sixth birthday party.

Historically speaking, envy has been a grand force in the schemes of civilization. Morally speaking, you might not go so far as to call it a crime—it stops short of carnality or constitutional violation—but you also might not request it as the epitaph on your tombstone. Personally speaking, it has been nothing but a bellyache; there have been hundreds of causes, and all of them have hurt.

These childhood abdominal twinges persisted in medical school. I envied easily and democratically. Almost anything was worth coveting. For instance, at the back of the amphitheater, a row of women knit their way through the

PHOTO: GANDEE VASAN/GETTY IMAGES



# I'll have what

Curing envy may be as simple as refocusing your lens.





she's having

# One man was in the last phases of multiple sclerosis, often spasms. We were the same age and from similar backgrounds,

preclinical years. They were quiet, capable, and unostentatious. Day after day, they worked on complicated pieces, digesting vast quantities of raw science at the same time. Once in a while, one of the knitters would halt production for a minute to make a note in her lap. Otherwise, their long bones clicked away, slipping pulmonary equations into cables and red-blood-cell variants into rows of Fair Isle. Those serene elbows filled me with envy. Magnificent careers and sweaters were under construction with the same ease. These women didn't seem to be paying for knowledge with blood like I was; they actually seemed to be enjoying themselves. This was silly envy, petty envy, the envy of a six-year-old for her classmate's sunken living room—but still, it was stomach pain.

## The Other Side

Since then I've had fleeting moments in which I've understood that envy is simple and real life is complicated. In the grips of lower-quadrant episodes, I sometimes realize that the lives I envy are not always enviable. I worked in a state hospital during residency. Patients lived there for years; discharge summaries were novels because no one was getting better. One of the sickest women had undifferentiated schizophrenia. Her father was a famous psychiatrist. I had read his writing. I wanted his wisdom and, even more, his fame.

The doctor was a rare but dignified visitor. He never asked to look at his daughter's chart, never made medication suggestions, and never took us to task for our clear failures in his daughter's case. She was a mess, with her underwear outside her clothes and powder caked on her cheeks, talking in tongues and drag-

ging a stuffed animal behind her. She approached his visits with ecstasy—everyone knew the dates and times of each anticipated arrival—and then destroyed them with some form of insane childishness.

One day she was holding a cup of coffee when he arrived. The famous psychiatrist could not read the look on his daughter's white-powdered face. He was reaching to kiss her when she threw the coffee on his suit. He stood sadly, dripping, in the day hall. In that instant, envy changed its physical state; what had been solid vaporized and rose away. He had nothing I wished for anymore.

Another psychiatrist once told me a good story, which I hastened to steal. He himself had been someone I envied, until I realized he envied me, at which instant he lost his luster. But still, I took his story. He once went to a conference. The plenary speaker was an international authority on the topic—some enzyme, I think—and had devoted his career to its research. He was a man to be envied. When he came to the podium, my colleague saw he was thin and pale. It was a noble pallor: too many nights rewriting, too many committee meetings, too many textbook chapters, too much travel. What a price he paid for his fame! His complexion reinforced his importance.

My colleague turned to the man next to him. It was not anyone he knew, but he thought admiration might give the two of them something in common. He made a remark about the speaker, this outstanding scientist who had sacrificed so much—maybe family life, maybe health, God knows what else. A great man, for sure.

The man next to him glanced up. "Never heard of him," he said.

My colleague went home and gratefully kissed his children.

It was a funny story—the stick hitting someone in the lotus position at the right moment. But it made its point. Ultimately, we will all dwell together, unrecognized, in dust.

## Deep Space

Subtler forms of envy also exist and, if we are lucky, do us the profound favor of educating us. When I was an intern, not one of my patients ever appeared to resent me for being well. Yet they must have felt it; each morning on rounds, we were a bed's distance and a world apart. One man was in the last phases of multiple sclerosis, often delirious, always incontinent, hard to understand, and racked by spasms. We were the same age and from similar backgrounds, separated by the simple fact that he was dying and I was not.

His illness was unyielding. Sometimes he would emerge from delirium into a lucid moment. When his wife was not there, ravenous for every intelligible word, we chatted pleasantly. He called me Little Doc. He didn't complain about the midnight blood draws, the intravenous lines repeatedly reinserted, the many tests without clear benefit. He understood they were feeble efforts at protection. Nor did he complain about the deepest difference between us. Why didn't he envy my health? He had the best cause of all for covetousness, but never once pointed out this disparity. I would have been unable to forget it. Instead, I am unable to forget him. If grace occurs by example, let him be mine.

We are all sinners. Life is short and, probably, only once. I admit I envy those who live it without comparisons. The rest of us are only human, and hoping to be better. ■

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*Elissa Ely '88 is a psychiatrist at the Massachusetts Mental Health Center.*



delirious, always incontinent, hard to understand, and racked by separated by the simple fact that he was dying and I was not.



PHOTOGRAPH BY MARTIN BARBAUD. 3.17.06 MACF

# The Sin of WAGES

TO BECOME A DOCTOR, YOU SPEND SO MUCH TIME IN THE TUNNELS OF preparation—head down, trying not to screw up, trying to make it from one day to the next—that it is a shock to find yourself at the other end, with someone shaking your hand and asking how much money you want to make. But the day comes. Several years ago, I was finishing my eighth and final year as a surgical resident. I'd received a second interview for a staff position at Brigham and Women's Hospital, where I had trained. It was a great job—I'd get to specialize in surgery for certain tumors that interested me, but I'd also be able to do some general surgery. ■ On the appointed day, I put on my fancy suit and took a seat in the wood-paneled office of the chairman of surgery. He sat down opposite me and then told me the job was mine. "Do you want it?" Yes, I said, a little startled. The job, he explained, came with a guaranteed salary for three years. After that, I would be on my own: I'd make what I brought in from my patients and would pay my own expenses. So, he went on, how much should we pay you?


Why do the good doctors on television hospital dramas drive old





PHOTO: STEVEN PUETZER/PHOTONICA/GETTY IMAGE

cars while the bad ones wear bespoke suits? *by* ATUL GAWANDE



After all those years of being told how much I would either pay (about \$40,000 a year for medical school) or get paid (about \$40,000 a year in residency), I was stumped. "How much do the surgeons usually make?" I asked.

He shook his head. "Look," he said, "you tell me what you think is appropriate, and if it's reasonable that's what we'll pay you." He gave me a few days to think about it.

People tend to gauge what they should be paid by what others are paid for doing the same work, so I tried asking various members of the surgical staff. These turned out to be awkward conversations. I'd pose my little question, and they'd start mumbling as if their mouths were full of crackers. I tried all kinds of formulations. Maybe they could tell me how much take-home pay would be if one did, say, eight major operations a week? Or how much they thought I should ask for? Nobody would give me a number.

Most people are squeamish about saying how much they earn, but in medicine the situation seems especially fraught. Doctors aren't supposed to be in it for the money, and the more concerned a doctor seems to be about making money the more suspicious people become about the care being provided. (That's why the good doctors on television hospital dramas drive old cars and live in ramshackle apartments, while the bad doctors wear bespoke suits.) During our hundred-hour-week, just-over-minimum-wage residencies, we all take a self-righteous pleasure in hinting to people about how hard we work and how little we earn. Settled into practice a few years later, doctors clam up.

### The Worth of a Pound of Cure

Since the early 1980s, public surveys have indicated that two-thirds of Americans believe that doctors are "too interested in making money." Yet the health-care system requires doctors to give inordinate attention to matters of payment and expenses.

When I was going through medical training, a discouraging refrain from older physicians was that they would never have gone into medicine had they known what they know now. Many simply seemed unable to sort through the insurance morass. This was perhaps

why a 2004 survey of Massachusetts physicians found that 58 percent were dissatisfied with the tradeoff between their income and the number of hours they were working; 56 percent thought their income was not competitive with what others earn in comparable professions; and 40 percent expected to see their income fall over the next five years.

William Weeks, a Dartmouth professor, has done a number of studies on the work life of physicians. He and his colleagues have found that, if you view the expense of going to college and professional school as an investment, the payoff is somewhat poorer in medicine than in other professions; the annual rate of return by the time professional school graduates reach middle age is 16 percent per year in primary-care medicine, 18 percent in surgery, 23 percent in law, and 26 percent in business. Not bad, in any of these fields, but the differences are there. Physicians' incomes also tend to peak when they have been in practice between five and ten years and then decrease in subsequent years as their willingness and ability to work long hours wane.

All that said, it seems churlish to complain. In 2003, the median income for primary-care physicians was \$156,902. For general surgeons, like me, it was \$264,375. In certain specialties, the income can be a good deal higher. Busy orthopedic surgeons, cardiologists, pain specialists, oncologists, neurosurgeons, hand surgeons, and radiologists frequently earn more than half a million dollars a year. Maybe lawyers and businessmen can do better. But then most biochemists, architects, and math professors earn less. In the end, are we working for the profits or the patients? We can count ourselves lucky that we haven't had to choose.

There are, however, those who do choose—and manage to earn considerably more than most. I talked to one general surgeon who had practiced at the same East Coast hospital for three decades. His schedule was not unduly heavy, with office hours from nine-thirty to three-thirty just one day a week and only about six operations a week. I asked how much he earned. "Net income?" he said. "About one point two million last year."

I had to catch my breath. He'd made more than a million dollars every year



# Most people are squeamish about saying how much they earn, but in medicine the situation seems especially fraught. Doctors aren't supposed to be in it for the money.

for at least the past decade. He was perfectly aware of the reaction. "I think doctors shortchange themselves," he said. "Doctors are working for fees that are similar to or below plumbers' or electricians'"—professions that, he noted, don't require a decade of school and training. He doesn't see why doctors should let insurance companies dictate their compensation. So he accepts no insurance. If you want to see him, you pay cash.

The fees he charges are what he finds the market will bear. For a laparoscopic removal of the gallbladder, insurers will pay surgeons about \$700. He asks for \$8,500. For a gastric fundoplication, an operation to stop severe reflux of stomach acid, insurers pay \$1,100. He charges \$12,000. He has had no shortage of patients.

It's not clear how easily others would replicate his success. After all, he works in a metropolis, where many people can afford his fees. He's also something of a star in his field.

But suppose I did what he did—refused to deal with insurance and charged what the market would bear. I would not make millions, but I could make much more than I otherwise would. I'd avoid all the insurance hassles, too. Still, would I want to be a doctor only to those who could afford me?

Why not? the surgeon was asking. Everyone squeezes us to make money, he said—everyone from the supply companies we pay to the insurers who pay us. In his view, doctors need to understand that we are businessmen—nothing less, nothing more—and the sooner we accept this the better.

His position has a certain bracing clarity. Yet, if this is purely a service-for-money business, if doctoring is no different from doing oil changes, why choose to endure twelve years of medical training, instead of, say, two years of business school? I still believe that doctors remain fundamentally motivated by the hope of doing meaningful

and respected work for society. Hence the responsibility most of us feel to take care of people even when their insurers exasperate us, or when they have no insurance at all. If we fail ordinary people, then the notion that we do something special is gone.

## The Price Is Slight

Physicians' after-expense incomes are a fairly small percentage of medical costs. But we're responsible for most of the spending. For the patients I see in the office in a single day, I prescribe around \$30,000 worth of specialist consultations, surgical procedures, hospital stays, X-ray imaging, and medicines. And how well these services are reimbursed inevitably affects how lavishly I can be in dispensing them. This is where income becomes politics.

Eleven years ago, I received the bill for the heart surgery that saved my son's life. The total cost, it said, was almost a quarter-million dollars. My payment? Five dollars—the cost of the copay for the initial visit to the emergency room and the doctor who figured out that our pale and struggling boy was suffering from heart failure. If my wife and I had needed to, we would have bankrupted ourselves for him. But insurance meant that all anyone had to consider was his needs. It was a beautiful thing. Yet it's also the source of what economists call "moral hazard": with other people paying the bills, I didn't care how much was spent or charged to save my child. To me, all the members of the team deserved a million dollars for what they did. Others were footing the bill—so it's left to them to question the price. Hence the adversarial relationship doctors have with insurers.

Given the politics, what's striking is how substantial medical payments have continued to be. Physicians in the United States today remain better compensated than physicians anywhere else in the world. Our earnings

are more than seven times those of the average American employee, and that gap has grown over time. (In most industrialized countries, the ratio is under three.) This has allowed American medicine to attract enormous talent to its ranks and kept doctors willing to work harder than members of almost any other profession.

At the same time, the politics of health care has shown little concern for the uninsured. One in seven Americans has no coverage, and one in three younger than sixty-five will lose coverage at some point in the next two years. These are people who aren't poor or old enough to qualify for government programs but whose jobs aren't good enough to provide benefits, either. Our byzantine insurance system leaves gaps at every turn.

## A Healthy Curiosity

A few days after the chairman of surgery offered me the job, I returned to his office and named my figure.

"That'll do fine," he said, and we shook hands. Now I am the one who's too embarrassed to say what I earn. We talked for a while afterward: about how to fit research in, how many nights I'd have to be on call, how to keep time for my family. The prospect of my new responsibilities filled me with both exhilaration and dread.

As the meeting was ending, though, I realized there was one final important question I had not brought up.

"What are the health benefits like?" I asked. ■

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*Atul Gawande '94 is a surgeon at Brigham and Women's Hospital, an assistant professor of surgery at HMS, and a staff writer for The New Yorker. His upcoming book, Better: A Surgeon's Notes on Performance, is slated for publication by Metropolitan Books in the spring of 2007. This essay was adapted from an article that appeared in The New Yorker.*



ALL



# THE RAGE!

Is anger good for you—and for medicine? by ALICE FLAHERTY

AS SINS GO, WRATH SEEMS A SPECIAL CASE. THE SAINTS RAGED ALL the time in thought, word, and deed, and stories of irate prophets fill the Bible. Would it be evil, I wondered, to write that anger isn't so bad? I asked Michael Suarez, a friend and a Jesuit, for guidance. Michael pointed out that, in the medieval conception of hell, anger was the only sin treated surgically, with dismemberment. He went on to explain, though, that only *excessive* anger is a sin. "You go, girl," he said.

Once I had anger's theology straightened out, I could turn to its neurology. Early wrath researchers studied cats and found that stimulating a feline's medial hypothalamus prompted it to assume a rage posture: spitting, arched back, bottle-brush tail. Stimulating its lateral hypothalamus, on the other hand, triggered a predatory, slinky, mouse-killing posture.

PHOTO: STEPHEN WEBSTER

# A particularly forceful mentor in medical school once explained to me, "I consider everything that to be mine. And I decide what is nailed down."

Human brains maintain this distinction between defensive and offensive aggression. One circuit guides us when something we consider ours is threatened: our corner office, our dignity. The other kicks in when we want something not yet ours: a scientific discovery, a tricky patient's compliance. Of course, many factors influence what we define as ours. As a particularly forceful mentor in medical school once explained to me, "I consider everything that isn't nailed down to be mine. And I decide what is nailed down."

We think of anger as the emotional component of aggression. In the basic biological sense, aggression and its emotional drive are so integral to our motivational system that it is difficult to imagine life without them. Mate-seeking is a form of aggression, even in the healthiest of us. That link between love and war is being found at the molecular level: The laboratory of HMS neurobiology professor Edward Kravitz recently showed that the same gene controls both aggressive and mating behavior in fruit flies. Indeed, love is not the opposite of aggression; *abulia*—a lack of desire and motivation—is. While anger is often irrational and counterproductive, so can love be, as when a patient remains devoted to an abusive spouse.

Although emotions are irrational, removing all emotion turns out to be even more so. One of the revolutions in modern affective neuroscience has been to show that patients who cannot feel emotions are terribly impaired at normal decision-making. They vacillate, fiddling while Rome burns.

Even if we narrowly define anger as the desire to inflict pain—which we shouldn't, because they aren't equivalent—there is an unfortunate sense in which that desire may be useful to physicians. A particular interest in pain can drive devotion to medicine, and doctors must often hurt to heal. A

study from the 1950s, the golden age of career profiling, showed that physicians score higher than the general population on indices of sadomasochism. (The masochism part is especially useful during residency.)

## The Shapes of Wrath

One of anger's most troublesome aspects is its contagion. All emotions are infectious, but escalating anger is more likely than love, fear, or disgust to trigger physical violence. One approach to blocking this escalation draws on Freud's reservoir and catharsis theory. It proposes that unexpressed anger builds up and that talk therapy can discharge it more safely than action can.

One of my patients, a writer, would seem to exemplify this. He is generally polite when hospitalized—at the most, he avoids an annoying doctor by pretending to be in a coma until the doctor leaves. After one such pseudo-coma he half-opened an eye and asked, dryly, "Why do I write such angry books?" The stock answer, of course, would be that he does so to vent the anger that his good manners suppress.

There is little scientific evidence, however, that expressing our wrath lessens it, except in those satisfying cases where it helps us get what we want. In most situations, studies show that venting anger merely heightens it, both in our rivals and in ourselves.

The biological basis of this emotional contagion is the mirror neuron system, a fascinating group of movement-control cells that fire when we perform an action *and* when we see someone else do the same action. Through these cells' mirroring function, witnessing an action also increases our own tendency to mimic it. Because performing an emotional gesture can induce the sensation itself, seeing another person's anger can make

us feel it. This is the neurological mechanism by which rage in deed spawns rage in thought.

Mirror neurons have a special importance for medicine because their emotional contagion underlies empathy. The link between empathy and behavioral imitation would suggest that empathic people are more imitative. And that is true, at least for gestures. People who score high on tests of empathy are also much more likely to unconsciously imitate others' emotional gestures in a conversation, even their emotionally neutral gestures. This finding suggests a simple test of compatibility: watch how often the other person rubs his or her nose when you rub yours.

Empathy's roots in simple imitation don't prevent it from achieving great complexity. Anger and many other high-level factors modulate mirror neuron activity. Functional magnetic resonance imaging shows that the mirror neuron area is active when one person witnesses another getting a painful electric shock. A recent *Nature* paper showed that the mirror neuron activity of someone observing the shock significantly decreased when the person receiving the shock had just cheated the observer at an economic game. Instead, reward-area activity increased—but only when the observer was male. Female observers had little decrease in mirror neuron activity and often reported that the cheater did not deserve the shock.

As this experiment indicates, anger is the emotional response to what we perceive as an intentional injury. The first-order response to anger is an impulse to take action, call it "justice" or "vengeance." If we have time, however, to consider our interests and self-image we may choose other responses. We feed the child after she has bitten us; we offer the abusive patient a way to save face and accept



# isn't nailed down



our suggestions. These are strategic, not mirroring, choices.

Mirror neuron function would seem to make a counterintuitive prediction about expressing therapeutic empathy toward angry patients. Given anger's contagion, when a patient is raging, wouldn't mirroring that anger make things worse? Not if done right. Staying calm nonverbally denies the anger and may make the patient try to communicate the emotion even more strongly. The trick is to express patients' anger over their own sense of injury rather than your anger toward them. Leston Havens, HMS professor of psychiatry, has pointed out how much more effective it can be to pound the table and bellow, "How infuriating!" than to try sweet-talking someone out of his or her anger. Once the doctor and the patient are on the same resonant frequency, it's easier for the doctor to decrease the amplitude of the patient's wild oscillations.

## Hell Hath No Fury

Turning from anger in medicine to anger medicine brings us to another twentieth-century holdover: the belief that angry, type A men are more likely to develop heart disease. Recent research shows, however, that type A personality does not confer much cardiovascular risk. The ones at risk are those with type D personality—depressed and passively hopeless. Moreover, while aggression correlates with higher death and injury rates among poor men, it correlates with greater success among high-status men. Anger is a tool; it works in some situations and not in others. Notably, it is a much healthier solution for people with power. That's why more doctors yell at nurses than the reverse.

Could it be that nurses yell less because they're more likely to be female? It's true that part of men's

higher aggression comes from the effects of circulating testosterone. Lawyers have shown us that this holds for women too: After winning a trial, female prosecutors experience a rise in testosterone levels. Judiciously applied testosterone gel would help nurses yell more, if at some cost of hirsutism and acne. Conversely, gerontologists sometimes give demented elderly men estrogen to make them less aggressive toward others.

Independent of hormones, though, a cost-benefit analysis shapes women's decreased aggression. As women tend to be smaller and lower in status, it is more often to their advantage to conciliate. When experiments place women in situations where they are reliably rewarded for their aggression, however, they quickly play as aggressively as men. It's just that daily life, whether in the hospital or elsewhere, does not usually present such situations.

One of my own experiences suggested that those situations occurred more often than I thought. Several years ago, on my return from a neurology meeting, I found myself in an airport snarl with little hope of getting home that night. As I stood wanly in an endless counter line, my department chief, Anne Young, strode past, scowling. "I can't wait in this line!" she

said to the man behind the counter. "I have to get back to Boston *right now!*"

He immediately issued her a new ticket and sent her to another gate that was loading smoothly. I realized the counter guy had no idea she was the president of the Society for Neuroscience. She's not all that tall, nor was she—sorry, Anne—imposingly dressed. So I set my brow in a scowl, strode up to the counter, and imitated her.

The counter guy smiled appeasingly and put me on the same plane. I even got a free cab ride from the airport with Anne. I decided to take this as evidence that God condoned my anger. In the cab, though, Anne argued, "Alice, I wasn't being aggressive, just...assertive."

"Didn't you want to punch someone, maybe the counter guy, just a bit?"

"Well sure! But that was just a little anger."

There you go—all we have to do is to avoid excessive anger. And figure out who gets to decide what is excessive. ■

*Alice Flaherty '94, a neurologist at Massachusetts General Hospital, is author of The Midnight Disease: The Drive to Write, Writer's Block, and the Creative Brain. Her first children's book, The Luck of the Loch Ness Monster: A Cautionary Tale of Picky Eating, is scheduled for publication by Houghton Mifflin in 2007.*

Sometimes slacking off can be the best medicine of all.

# AMERICAN IDLE





# {PRIDEENVYGREEDWRATHSLOTHGLUTTONYLUST}

SLOTH, OF ALL THE SEVEN DEADLY SINS, SEEMS THE MOST innocuous, if not downright salubrious. While the perilous excesses of lust and gluttony are obvious, sloth seems merely an exaggerated form of relaxation, which is supposed to be good for us. Envy, anger, and greed dilute down to jealousy, resentment, and selfishness, none of which promotes healthy blood pressure the way repose does. And while pride carries certain positive connotations, even that petty self-congratulation doesn't feel as good as napping in a hammock all afternoon.

PHOTOGRAPH BY STEPHEN WINTER

*by* RAFAEL CAMPO

# Sadly, the medical profession has become rife with intellectual the work of our stethoscopes and skulk about on morning

Sloth doesn't even sound terribly menacing. It rolls off the tongue almost effortlessly, which nearly makes it an example of onomatopoeia, a word that, by contrast, takes great effort to pronounce and hardly seems any more virtuous. For poets, whose interest in the sound of words is rivaled only by our appreciation for relaxation and hammocks, sloth is also rich in rhyme words, like "froth," "broth," and "troth," or—for the chiefly British pronunciation—"growth" or "oath." While I can't say I've used all these rhymes in my own poetry, this is not for lack of trying; I'm known for my frequent and subtle use of words that sound like their meanings.

Poets are also fascinated by the etymologies of words, which might seem contrary to our reputation for being so stress-averse. Why, I couldn't help wondering, did the *Bulletin's* editor ask me to write on what Evagrius of Pontus, upon first arriving at his short list of particularly notable human failings, called "acedia"? For those of you too lazy to get up off the couch, fire up your laptops, and do a Google search, "acedia" has its roots in the Greek word *akedia*, which translates roughly as "not to care."

It is unfortunate that "sloth" is also the name we've given to one of the least appealing species on the planet; defenders of the sloth, however, are quick to remind us that these homely creatures possess a sweet and gentle nature. They are more likely to die under the wheels of a car driven by a stressed-out human than of the maladies that plague overachievers, such as stroke and bleeding ulcers.

I suppose I must concede that a medical downside to sloth does exist beyond the perils of a sedentary lifestyle. It pains me to witness examples of the bad kind of sloth on hospital wards, and by this I don't mean the room after room of people lying listless-

ly in bed all day. (Sloth isn't so terrible when we call it "recuperation," is it?)

I have felt dismay whenever the notes of attendings have simply regurgitated the physical exam findings that the third-year medical students have written. I also detest all those unexact and sometimes confusing abbreviations, such as "VSS," which makes me think of the age designations on bottles of cognac; "A&Ox3," which resembles the string of cuss-words that fly from the mouths of cartoon characters; and "ARDVTCVT"—God only knows what it means, but if written in a cardiology consultant's note, it's probably lethal unless one administers IG IV MG STAT.

Sadly, the medical profession has become rife with intellectual slackness. We rely on echocardiogram machines, for example, to do the work of our stethoscopes. And we skulk about on morning rounds hoping not to be spotted by patients' family members, whose questions will only prolong the execution of our tasks—if the institution hasn't already hired hospitalists to perform even this basic function for us.

It's not as if we're using all our free time to read the *New England Journal of Medicine* cover to cover (we have *Journal Watch* for that)—nor are we bettering ourselves by reading poetry or watching the History Channel. And we have the nerve to accuse our patients of sloth, as if the association between physical inactivity and obesity could be any worse than the association between years of medical training and an ignorance of the word "acedia!"

It was my own ignorance of a word that once led me to mistake convalescence for indolence. I was a brand-new third-year medical student on the surgery service of a Boston hospital. Mrs. C. was a pleasant older woman whose inflamed gallbladder we had successfully removed without





slackness, as we rely on echocardiogram machines to do rounds hoping not to be spotted by patients' family members.



complication several days earlier. Charged with sending her home, I was eager to see her resume her regular activities. So, armed with a clipboard full of discharge instructions and triplicate forms, I marched into her room to find her seated in her bedside chair, her hospital gown billowing out around her and a somewhat uneasy look on her face. I had noticed she seemed to spend a great deal of time in that chair, and I suspected she was a slacker in need of firm treatment to get her active again.

Before she could offer any objection, I launched into my spiel: what activities she could and could not undertake, a detailed list of her discharge medications, a nuanced explanation of the need for exercise to combat the ills of a sedentary lifestyle. As I rambled on, she looked more and more uncomfortable. Sensing she might still harbor reservations about getting back on her feet, I reassured her that she would be fine, and indeed that she was far better off at home, reminding her that the hospital, despite the doting nurses and frequent deliveries of free food, was actually a dangerous place. By now, her face had turned beet-red, almost purplish, and so I decided, after a long breath, to allow her the chance to speak.

"Young man," she thundered, "I'm in the middle of a *movement*!"

Suddenly I realized two things. First, what I had assumed was an amply proportioned easy chair was actually what the nurses had been calling a commode, and second, what they meant by "commode." The reader should now understand my instinct to fight sloth and discover the meanings of words, especially unfamiliar ones. ■

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PHOTO: KAREN FETZEL/ARTISTBYPHOTO.COM & GETTY IMAGES





by WILLIAM IRA BENNETT

# Gorged on Guilt

OF ALL MY FAILED AMBITIONS, PERHAPS THE ONE THAT pains me most is my inability to abolish the sin of gluttony from the canon. Almost 25 years ago, when Joel Gurin and I finished writing our book *The Dieter's Dilemma: Eating Less and Weighing More*, I believed we had a shot at reducing the number of deadly sins, at least in secular terms, from seven to six. We made a pretty good case, I thought, that gluttony simply doesn't exist, that the very notion of "overeating" verges on the nonsensical, and that any serious approach to weight control would call for a radical rethinking of the way the body manages its energy stores.

The waistline wars pit virtue against vice while ignoring the objections of science and logic.



# Obesity is still almost universally understood, even by private moral matter. The guilt of the fat is relieved by accusations directed at fast-food joints and soft-drink

By 1981 a body of evidence was emerging in the scientific literature that fat is not simply an accidental accumulation of calories resulting from ill-informed or self-indulgent eating behavior. Rather, energy stores are subject to intensive management by the body, and eating behavior is a response to the body's demand for fat, not an independent variable, and certainly not *the* independent variable. Fat stores may vary in amount and distribution over time, and they can sometimes be consciously modified, but fat has a life and a mind of its own. Joel and I laid out the best argument we could—based on evidence that had been accumulating for four decades—that the brain and the waistline are in intimate communication with each other and that the brain acts to match energy stores with a “setpoint” value that is determined by genetic endowment and modified by environmental influences.

What was missing from our setpoint argument at the time was clear evidence that the brain had any effective means of measuring body fat stores. As one distinguished HMS alumnus said to me, “You don’t have a smoking gun.” We didn’t, although there was already a good deal of smoke in the room. It would be another decade before the first gun, leptin, was discovered in what has since proved to be a large arsenal of signals informing the brain about energy balance in the body. The list is long, and the names are sometimes exotic. They include ghrelin, obestatin, resistin, melanocyte-stimulating factors alpha and beta, interleukin-6, tumor necrosis factor alpha, and my all-time favorite, Foxc2. Quite apart from the fact that Foxy Too sounds like an Internet come-on, this molecule is described as being a “winged helix/forkhead transcription factor.” Its expression is stimulated by high-fat diets. So if obesity really is a battle between good and

evil, the movie will have to show an army of fork-headed helices flying in formation over a crater of boiling oil.

## The Weight of the Evidence

Delicious bits of evidence against gluttony as an explanation for obesity accrued in the 1950s and 1960s when Ethan Allen Sims, a distinguished endocrinologist at the University of Vermont, set out to study the effect of intentional overeating on human volunteers. Sims found it difficult to locate a population that could meet his experimental requirements. College students couldn’t sit still long enough to gain weight, and negotiations with a monastery had fallen through.

Sims was finally able to work out a deal with the inmates of a Vermont prison, who should have been ideal for the task. These were, after all, people for whom a propensity to heedless self-indulgence had already been established in court and who ought to have been delighted at the prospect of eating half a dozen banana splits in the course of a day while lounging around in striped pajamas. Yet one of Sims’s discoveries from this research was that overeating to gain weight proved both physiologically and psychologically difficult for the subjects, many of whom wanted out of this trial.

Joel and I also knew about critical experiments leading, decades later, to the discovery of leptin, but much to our eventual regret we decided they were too difficult to describe and left them out of our book. In his brilliant and quirky way, Douglas Coleman at the Jackson Laboratory in Bar Harbor, Maine, had demonstrated that a circulating factor profoundly influenced accumulation of body fat in mice. Coleman showed this by stitching together two mice—one genetically obese but otherwise identical to another of normal weight—so that they shared a

common circulation. This procedure led to profound changes in the obese mouse; it lost weight. A factor in the bloodstream of the normal animal had apparently “signaled” its twin that enough fat was already present on its body—no need to acquire more. Yet, matched to an obese mouse with a different mutation, the normal mouse would dwindle to death. In this case the normal twin was falsely informed that it had *too much* fat on its body.

Even without this tale of two rodents, we thought we had made a tidy, readable, and even amusing case. If nothing else, we could offer a theory for the relentless failure of diet plans (and the equally relentless appearance of new ones rising from the trash heaps of Scarsdale and Beverly Hills).

What we didn’t fully appreciate was the fact that the oral stage of human development is the first and by far the most persistent. For perfectly good evolutionary reasons a mammal’s nervous system is perched immediately above its food-intake apparatus. If a problem *can* be understood in terms of appetite, it *will* be. Thus, otherwise subtle thinkers descend to stunningly simplistic worldviews when the subject is adipose. Indeed, Joel and I lost the battle for our own title, which our publisher selected hoping to sell more books by including the word “diet.” We wanted to call our book *The Matter of Fat*, which probably would have reduced its merely modest sales to the downright microscopic.

We also disregarded how attached people are to guilt. They have an insatiable appetite for it. Given the opportunity, people will take guilt over almost any other state of mind. I say this with misgiving, as common sense suggests blame would be the popular choice. Nevertheless, guilt is the winner. Obesity is still almost universally understood, even by the obese, as a private moral matter. The guilt of the fat is



the obese, as a  
only occasionally  
manufacturers.

relieved only occasionally and momentarily by accusations directed at large industries, as when fast-food joints and soft-drink manufacturers are blamed for the international epidemic of obesity. Parenthetically, the petroleum industry, which is at least as implicated in this so-called epidemic, is rarely accused of causing weight gain. I believe there are two reasons for this. We relate to our cars with our hands (*implication*: mastery) instead of our mouths (*implication*: indulgence). Of course, oilmen also appear to be even slicker than cigarette manufacturers when their products come under scrutiny.

After the genital organs, body fat is the tissue with the highest level of moral content and hence the highest associated level of guilt. (Biomedically speaking, "moral fiber" is a complete nonstarter.) I suppose one reason for our attachment to guilt is that it is so intimately linked to hope and the fantasy of "will power." By a somewhat perverse reasoning process, guilt implies the possibility of salvation or, better yet, a smaller dress size.

I cannot deny the evidence that weight may be controlled, at least to some degree, by restricting food intake. Survivors of concentration camps or the South Beach Diet are, at least for a while, thinner than before. Whether it is possible to use these methods of weight reduction without inducing post-traumatic stress disorder is, I think, an open question. Whether the weight loss will outlast the trauma is equally open to study.

### Eating Your Words

After *The Dieter's Dilemma* was published, it enjoyed a brief period of media attention. I am, to this day, grateful that this part of the experience came to so little. On a photo shoot arranged by *People* magazine, Joel and I were taken to a local park and posed

in running shorts with our mouths wide open at either end of a six-foot submarine sandwich. The editors killed the article, which was a far better outcome than if it had been published and I had had to kill myself.

As our national tour went into its second, declining week, I found myself on a radio talk show somewhere in Canada. The host, a hearty, bluff man, was an exception to the rule of guilt. He was happy to blame his wife—and all wives everywhere—for spousal obesity. It was actually a nice twist of sociobiological thinking on his part: women make their husbands fat to make them unattractive to other women and thus faithful to themselves. Nothing I could say would derail him from his pursuit of this conjugal point.

Perhaps the happiest outcome, for me, from the publicity phase of *The Dieter's Dilemma* was that I eventually learned to say, with perfect comfort, "No, I have no interest whatsoever in appearing on *Oprah*." I would not have minded becoming famous, much less becoming rich. But what I took away from my few television appearances was that 15 minutes slightly underestimates the duration of television fame—and significantly overestimates the ability of viewers to remember the

reason for fame. A day or two after one appearance a stranger came up to me with a pleasant smile and said, "I saw you on TV the other day! You were talking about... something."

Joel and I believed with near-apostolic fervor that we could release our readers from the sin of gluttony. But we were thinking of a sin as something one *does*. Our readers, perhaps correctly, took our message as Calvinist: A sinner is something you *are*. We had inadvertently moved the doctrine of the elect to the waistline. And so we managed to turn off two kinds of readers. The overweight wanted to believe they had made themselves fat, as this held out the hope of repentance, salvation, and better sex. Our thin readers weren't content to believe that their figures were the outward and visible signs of genetic grace and often deeply resented our efforts to deprive them of credit for their virtuous ways. And that is how Joel and I became prophets without profit. ■

William Ira Bennett '68, who practices psychiatry in Cambridge, Massachusetts, is editor-in-chief of the Harvard Medical Alumni Bulletin. Since coauthoring *The Dieter's Dilemma* with Joel Gurin (*Basic Books*, 1982), he has gained 30 pounds.





Passion marks the times in a



# Lust me, I'm a doctor

physician's life—and adds life to his times. *by* STEPHEN BERGMAN

WHAT'S SO SINFUL ABOUT LUST? AS WITH OTHER MEDIEVAL CONCEPTS, the risk-benefit ratio may well be overblown. The six other deadlies are clearly iniquitous. But lust?

Think about it. Lust itself, without an object, is pretty vague and rarely dangerous—except, perhaps, when spoken aloud by U.S. presidents, as when Jimmy Carter fessed up to the lust in his heart or Bill Clinton disavowed his lustful acts. George W. Bush, on the other hand, seems boyishly lustless. In the bizarre American national calculus, the lust for a thong can nearly bring down a commander in chief, but the lust for oil and empire and revenge that strews bloodied bodies in its wake cannot.

While a doctor's "lusty" sex life may be healthy, lust can easily turn to savagery and shame, blame and perjury, and then—bingo!—there goes the license to practice. But let's wait on sex and examine first some of the other objects of lust in medicine.

FROM J. LEAHLE R. C. ST. PAUL PHOTOGRAPHY GETTY IMAGES

# Given the senseless pressures we faced, sex was one of the two ways we affirmed that we weren't dying or dead, but rather young and healthy and alive.

## The Lust for Gross Anatomy

I attended my first day of dissection at Harvard Medical School with some trepidation. I had spent the previous three years in Oxford, England, eating strawberries and cream on the lawn, and now I was staring at cadavers and sniffing formaldehyde in the basement. My reaction to this scene was not the usual faintness of heart, but rather an epiphany, with a little inner voice whispering: "Maybe Vietnam would have been better after all?"

My partner and I were instructed to dissect the brachial plexus. He, a budding surgeon, snatched up the knife and began to hack away with a kind of missionary zeal at the jungle of muscles and nerves. I watched. He could not find the brachial plexus. The instructor came over. He was a thin, fit, lustful Brit.

"We can't find the brachial plexus," moaned the surgeon-to-be.

"Maybe he didn't have one," added I.

The instructor looked at the corpse's muscular arm, shrugged disdainfully, and, with a kind of glee, poked his nose into what had once been an intact armpit. He straightened up and said, triumphantly, "You stupid bastards, you chopped it up into linguini!" Then he dug into the goo of the other armpit. My memory has him working away while whistling a salacious ditty popular during World War II: "Monday night me 'and was on 'er ankle, Tuesday night me 'and was on 'er knee." The guy lusted after that plexus. The song ended with, "I don't want to join the army! I don't want me gonads shot away-y-y..."

## The Lust for an Organ

In the spring of 1970, the student resistance movement to the Vietnam

War had heated up and we'd learned that the Ohio State National Guard had killed four protesting students at Kent State University. Many universities went on strike, and students at HMS needed to decide whether to join in. We first-years were about to begin the Kidney Block, and so we called a meeting to debate the issue. Speeches were given on both sides: "If we go on strike, we'll never learn the kidney!" versus "The hell with the kidney! This is more important."

We went on strike. I never learned the kidney. In my novel *The House of God* the kidney is only vaguely described as an organ floating somewhere between the back of the neck and the back of the knee, and one of the villains is a kidney doc. This character lusts after the kidney—lusts, in fact, for any failing organ with which he can "teach [his] boys medicine." Lusts more, alas, for the organ than for the organism that contains it. Oblivious to the real human stuff, he inadvertently provokes his students to treat humans inhumanely, making a hash of the internship experience. Thus, one of the bad traits of lust: it may get in the way of good relationships and may make other people's lives miserable.

## The Lust for Cash and Power

A wise teacher once told me: "The hearts of ambitious people dry up." All around us in medicine, especially in large academic settings, one can see the gleam in the eye of a young man or woman ogling the next rung up, slurping the next slurp up that big luscious ice cream cone and pausing only to intone: "Publish or perish," or "Let's go look at that liver in Room 1102," or "The only problem with learning the name of one more

patient is that you forget the name of one more protein."

A friend with cancer recently told me that while at the National Institutes of Health he felt he was being treated as Lab Rat Number 178. My own profession, psychiatry, may be one of the worst examples of the lust for cash, power, and academic stardom. I chose the field because I thought it was one of the more humane areas of medicine. "Talk therapy," when it is the patient's and doctor's shared journey through suffering, can be remarkably healing. Yet if a therapist has one eye on the patient and one eye on the steep climb up the greasy cash-and-power pole, the patient suffers.

Psychiatric residents, in fact, no longer really learn psychotherapy. It's mostly Drugs "R" Us, which ensures minimal patient contact and a comfortable living. It is difficult to attend fully to a patient while attending to a sexy career. Grooving on yourself may make it hard, even, to *Primum non nocere*.

## The Lust for Knowing Everything

Thankfully, the lust for omniscience can often be helpful to patients. But lust in any form narrows our vision, and sometimes the lust for knowing everything can blind doctors to making a good connection with a patient, or taking a good history, or remembering that common diseases occur commonly and that hoofbeats outside the window don't always signify a zebra.

When I was a medical student I had a 55-year-old patient with shortness of breath. She had a terrific workup by Doctors Who Know Everything, but no one could figure out what ailed her. A lung biopsy showed eosinophilia. She lay there on the ward, gasping,



diseased or



failing, getting depressed. I spent hours with her, asking her about her life. One day she mentioned that she rented out rooms in her house and that one of her tenants was a magician. When she told me that he kept pigeons for his act in cages above her washer and dryer in the basement, my ears perked up. I asked questions. It turned out that when she ran the dryer, the pigeon droppings became aerosolized; she had been inhaling that dust for years. I rushed to the library (in those days we still used libraries and consulted actual books): pigeon-breeder's lung disease.

The lust to make the diagnosis had prevented the medical redhats from listening deeply enough to make the diagnosis. In good medicine and life, good connection always comes first. Self-centered lust often creates a debt. Patients—or a doctor's family members or friends, given the time and effort it takes to become a Doctor Who Knows Everything—suffer from this compounded debt.

### The Lust for Sex

When I was a third-year medical student I was startled to learn that the classic object of lust—sex—was rampant in teaching hospitals. I was on my first rotation, in surgery. One night I was heading for bed in the upper bunk when, from the lower bunk, the surgical resident snarled, "Get lost." I asked why. He nodded toward the nurse standing in the doorway. I was shocked! In the hospital? While he was on call? Call the Teaching Hospital Sex Police!

Two years later during my first week of internship we interns (all male) were invited to a party hosted by nurses (all female but one). As I sat there chatting and sipping my wine, a nurse told me to hold out my

hand, palm up. She placed a corkscrew in it, closed my hand over it, smiled, and asked, "Get it?" At first I didn't. But then I did.

Years later I found out that most of the other interns did as well—even the married ones. Given the senseless pressures we faced, sex was one of the two ways we affirmed that we weren't diseased or dying or dead, but rather young and healthy and alive. The other was the use of humor, pretty dark humor. We rode through the internship on sex and humor. Was it lust? Often, but often it was a kind of love, if not love itself. Sometimes it led to a healthy lust, a happy marriage.

In Sonnet 129, Shakespeare writes, "The expense of spirit in a waste of shame / Is lust in action..." But could the Bard have been mistaken? Was his take on lust too narrow, his shame too acute? Perhaps if the suffering of the spirit is great enough, the expense is small.

### Missionary Lust

Finally, a grand and good medical lust—the lust for making patients and the world better. This lust is not

self-serving; it expands from self-centeredness to our patients and to others. The urge is broad enough to encompass the world of patients, and maybe even the world. The expense of spirit is for the sake of inspiring, and it is an investment, not a debt.

I recently heard a story about a doctor working in a leper hospital in Asia. A physician friend came to visit her and, seeing the conditions and her hardship, said, "I couldn't do what you do for a million dollars!" She replied, "Neither could I."

One of the greatest things about the newer generation of doctors is this lust for making the world better. Their accomplishments before, during, and after medical school are astonishing. If that's lust, give us more! Selfless lust for doing good? *Saintly* lust? It just might cure the world. ■

Stephen Bergman '73, PhD, as "Samuel Shem" is author of the novels *The House of God*, *Fine, Mount Misery*, and the upcoming *The Spirit of the Place*. With his wife, Janet Surrey, he has coauthored the play *Bill W.* and Dr. Bob and the book *We Have to Talk: Healing Dialogues Between Women and Men*.

Clinicians soothed the ills of the savage—and not so savage—beast

# creature comforts

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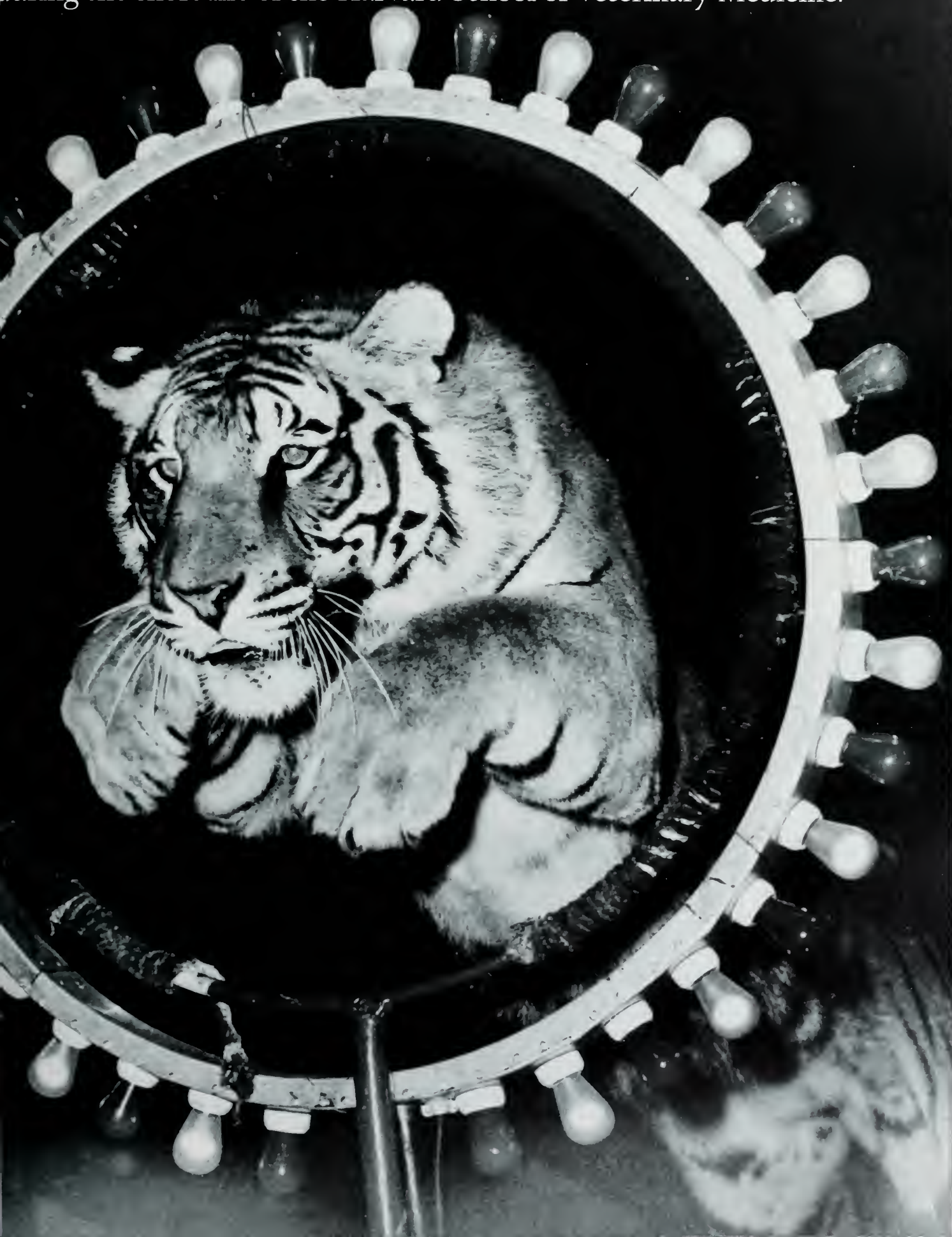
LEPHANTS CIRCLED THE RING, THEIR FEET percussing the ground and creating the bass to the treble notes struck by the chains linking their legs. Perched above, an aerialist, decked in spangles and tights, pushed the trapeze into a test swing. It was 1937 and I was five years old, still in short pants. With my older brother, Bill, and my mother, I had traveled to the Boston Garden to see the circus—my first. The air burst with excitement and noise, and everything seemed wonderfully exotic. ■ Suddenly, not far from us, a big cat opened wide its mouth and let loose with an ear-splitting roar. As we stared at rows of large, scary teeth, Bill and I caught our breath. ■ Then Bill leaned toward me, his sailor hat askew. With a grin as toothy as the great feline's roar, he asked, "Who fixes the tiger when he has a toothache?"

by ANTHONY S. PATTON





during the short life of the Harvard School of Veterinary Medicine.





# The Harvard School of Veterinary Medicine was the fourth veterinary school in the United States and the first to be organized as part of a university.

The answer to my brother's question may have been the circus veterinarian. Or it may have been Boston's Angell Memorial Animal Hospital, established in 1915. But the most likely answer, one I learned decades after my brother posed the question, was the Osgood Animal Hospital on the corner of Village and Lucas streets in the South End of Boston. A ruddy brick structure designed by famed architect Stanford White, the Osgood Animal Hospital provided medical care not only to the four-legged members of many a Boston family, but also to large animals, including horses, cows, and, when the circus was in town, the occasional tiger or elephant.

When the Osgood Animal Hospital opened for business in 1901 it needed to do little by way of advertising or set-up; it had inherited its

trade, implements, building—and mission. The hospital had first thrown open its unique horseshoe-shaped door, one large enough to accommodate an elephant, nearly two decades earlier as part of a far-sighted, but ultimately ill-fated, effort to establish the Harvard School of Veterinary Medicine.

Affiliated with Harvard Medical School and boasting a roster of faculty gleaned from the Medical School's ranks, the School of Veterinary Medicine was the fourth veterinary school in the United States and the first to be organized as part of a university. Begun in 1882, it would last a mere 19 years, one of the rare graduate departments at Harvard that failed to thrive. Despite its brief existence, however, it catalyzed new thought about the academic preparation of veterinarians. Its rigorous course of instruc-

tion and length of training matched or exceeded that found in the best European veterinary science institutions of the time—and set standards that other U.S. veterinary schools sought to match.

## That Old Chestnut?

The veterinary school began as one man's idea and grew through another man's vision. The idea man was Charles Eliot, the luminary who served as president of Harvard University from 1869 to 1909. The vision fellow, and the person whose day-to-day efforts made that vision tangible, was Charles Parker Lyman, a respected fellow of the Royal College of Veterinary Surgeons and the first dean of the veterinary school.

During his tenure, Eliot reformed many of the policies and practices of the university, particularly at



## The President

Harvard President Charles Eliot transformed the teaching of science at the university by adding new disciplines and reforming the teaching of existing ones. His insights provided the spark for the veterinary school.



## The Dean

Charles Parker Lyman, first dean of the Harvard veterinary school, established a standard-setting curriculum that was scientifically rigorous, had a broad scope, and drew upon the expertise of faculty at Harvard Medical School.



## The Donor

Boston businessman Benjamin Bussey was a silversmith, an owner of an overseas trade for general merchandise, and a founder of woolen mills. His Boston estate, willed to Harvard, became the Bussey Institute and farm.

CHARLES ELIOT: COURTESY OF THE HARVARD UNIVERSITY PORTRAIT COLLECTION; CHARLES PARKER LYMAN: COURTESY OF THE HARVARD UNIVERSITY PORTRAIT COLLECTION; BENJAMIN BUSSEY: COURTESY OF THE HARVARD UNIVERSITY PORTRAIT COLLECTION; HARVARD UNIVERSITY ART MUSEUMS



Harvard Medical School. Despite great advances in surgery, anesthesia, and medicine, the School had become academically lax, with minimal requirements for admission and only four months of formal instruction per year. The educational program depended on an apprentice system subject to favoritism and an inconsistent curriculum. Several Boston families ran the School like a fiefdom, and their members found admission easy. Final exams were oral, and students who paid their fees rarely failed to graduate. Histories of the time suggest that the institution bordered on being a diploma mill. When Eliot tried to make curricular changes, the faculty accused him and the members of the Harvard Corporation of unjust interference.

"Does Mr. Lowell know anything about medical education? Or Reverend Putnam? Or Judge Bigelow?" famed surgeon Henry Bigelow, Class of 1837, bellowed in protest. "Why, Mr. Crowninshield carries a horse-chestnut in his pocket to ward off the ravages of rheumatism! Is the new medical education best led by a man who



**UNLUCKY HORSESHOE:** The Horvord veterinary school hospital, whose doorway was noted for its unusual shape, operated on a shoestring throughout its existence. Financial difficulties presented themselves at inception, when a requirement to guarantee a sustained 6-percent net annual income could be met only when one of the school's first faculty members, William Whitney, provided \$500 from his own pocket.

keeps horse-chestnuts in his pocket to cure rheumatism?"

### Down on the Farm

Despite the howls, Eliot's reforms succeeded, and strong academic

departments of anatomy, physiology, and chemistry emerged. Research received greater emphasis, and professional standards rose dramatically. This growth included the establishment of the Bussey Institute, a facility devoted to the horticultural,



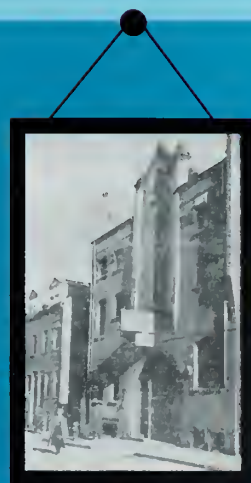
### The Farm Hospital

The Bussey Institute, located on the site of the current Arnold Arboretum, was dedicated to the study of horticulture, agriculture, and farming sciences.



### The Faculty

Drawn from the ranks of HMS, veterinary school faculty included William Whitney (above), who taught histology and parasitic diseases, and J. Collins Warren (right), assistant professor of surgery.



### The Hospital

The facility at 50 Village Street in Boston allowed Harvard veterinary students to gain surgical and clinical experience while caring for local animals.

agricultural, and farming sciences. Founded in 1871 through a bequest from Benjamin Bussey, a successful Boston merchant, and located at what is now the Arnold Arboretum, the institute was surrounded by a working farm.

With farm animals an important focus, the institute's programs included courses in veterinary medicine. Eliot believed that properly trained practitioners of veterinary science would contribute to the public good by helping to reduce costly epizootic diseases among cattle, horses, and swine, for example, and by ensuring a supply of healthy animals for the country's transportation system. This notion, however, was not an easy sell to Harvard's governing groups. In an 1894 address to students of the veterinary school, Charles Francis Adams, Jr., president

of the Union Pacific Railroad and a trustee for Harvard University, noted that the opposition believed that Harvard was "committing a species of indignity in concerning itself in the care of brute creation." The decision-makers thought educating physicians was fine but recoiled at the thought of giving diplomas to "horse doctors and cow doctors."

"It is true there was high authority for, in certain contingencies, throwing physic to the dogs," Adams added, "but the objectors saw no sufficient reason why the University should do the throwing."

But assent, however reluctant, was finally given and Eliot moved ahead, inviting Lyman, an educator and veterinarian, to the institution. A native of New York City, Lyman had graduated from the Veterinary College in Edinburgh, Scotland, and taught vet-

erinary courses at the Massachusetts Agricultural College. His appointment as a professor of the Harvard School of Veterinary Medicine began in 1882; four years later, he was made dean. From the first, he worked to build a comprehensive and rigorous curriculum. An 1883-84 annual report of Harvard College details his ambitious program—and hints at his pride in the school's early accomplishments.

The report announced that courses in the theory and practice of veterinary medicine and surgery, medical chemistry, and pathological anatomy were to be added, giving heft to the basic line-up of anatomy, physiology, chemistry, and botany. The additional courses also brought Lyman closer to building his proposed three-year course of study for veterinary students. The resemblance of this academic litany to that



**WATER WHEELS:** Early firefighters depended on horses to propel fire wagons wherever needed. The devastation wrought by the Boston fire of 1872 was attributed in part to a flu-like epidemic among horses that left many fire units without critical horsepower.

PHOTO: COURTESY OF BETTMANN/CORBIS





Although powerful teams of horses usually hauled the fire carts and pumpers, on the day of the blaze almost all these mighty beasts were disabled by disease.

expected of medical students was no coincidence; Lyman aimed to build a curriculum heavily weighted with scientific subjects, mirroring that provided to HMS students.

Academic growth was matched by clinical growth. From the autumn of 1883 to the following autumn, the school's clinics treated nearly 1,500 patients. The 690 "in-door" patients at the Village Street hospital included 476 horses, 186 dogs, 14 cats, ten cattle, and one squirrel.

Among the faculty teaching the courses were the eminent surgeon J. Collins Warren, Class of 1866, assistant professor of surgery; the pioneering physiologist Henry Bowditch, Class of 1868, professor of physiology; and the noted pathologist William Whitney, instructor in histology and parasitic diseases.

When the school outgrew the lecture facilities at the Bussey Institute, not to mention the inconvenience of having its students travel from downtown Boston to the institute's rural location, Lyman oversaw the construction of classrooms adjacent to the Village Street hospital. The Bussey Institute retained its affiliation with the hospital, however, serving as a rest and recuperation facility for large animals that had been treated at the hospital.

### Horse Sense

From its inception, the veterinary school emphasized the care of large animals, particularly the horse. In the mid-nineteenth century steam trains took over long haul work, but the horse was still the most common and efficient method of local transportation. By the end of that century, Boston was home to as many as 15,000 horses; an estimated 40,000 people traveled daily in horse cars while another 2,500 rode in carriages. A horse-drawn trolley

that ran from Harvard Square to Scollay Square took only 25 minutes and cost a nickel.

A large industry devoted to horses developed. Research determined the amount of work that could be expected from each breed and, to help balance upkeep costs with productivity, books detailed the amount and types of feed most likely to produce top performance from each breed. Horses were assigned to jobs based on their physical attributes. Strong beasts powered wagons; reliable ones pulled carriages, taxis, sleighs, and trolleys; and handsome specimens trotted out for shows and Sunday rides.

Some historians believe that the great Boston fire of 1872—a 35 hour inferno that devoured more than 750 buildings in central Boston—helped promote the establishment of the veterinary school. Although powerful teams of horses usually hauled the fire carts and pumpers, on the day of the blaze almost all these mighty beasts were disabled by a disease that resembled human influenza. Much of the equipment had to be hauled by the firemen themselves, slowing the response to the disaster.

The need for more scientific care for horses was probably not the only force to support the creation of a veterinary school. During the nineteenth century a change in thinking about man's position in the hierarchy of the universe emerged. Sparked in Boston by the transcendentalist movement, new views emphasized the intimate connection between all nature and mankind and advocated respect for the natural world. Led by prominent abolitionists and Quakers, a consensus emerged that the kind and empathic treatment of all life forms was an important social value. The development of a rational and sympathetic science around the care of animals resulted from this movement.

The School of Veterinary Medicine flowered in this milieu. In 1899, a *Boston Daily Globe* article about the Harvard veterinary hospital captured the relationship between the humane movement and the care of animals. "The milk of human kindness, once it begins to flow, is fluid that increases in greatly unexpected volume and often finds a course through totally unlooked for channels," the reporter wrote. "And so it is not strange that while so much was being done for humanity, somebody should look around and plan for the fullest measure of kindness to humanity's dumb friend and brother."

### Rooms with a View

Firefighters, draymen, and Boston Brahmins all brought their animals to the Village Street hospital. Fees were kept low even though the hospital depended on its income to continue operating; it was built largely through private contributions and never enjoyed the comfort of an endowment. In keeping with Eliot's idea that the public's health was served by well tended and healthy livestock, the daily rate for board, treatment, and medicine for sick horses was set at two dollars per day; surgical cases commanded half that fee. Dogs were boarded and treated for 50 cents a day and outpatient visits carried a charge of one dollar. Large animals that needed to stay at the Bussey Institute farms were treated and boarded for \$4.50 per week.

Those who couldn't bring their animals to the Village Street hospital could bring them to the school's Free Clinic on Piedmont Street during the two days it was open each week. There clinicians treated thousands of ailing or injured animals, charging their owners only for the cost of medications.



ome have postulated that the school failed because it was ahead of its time, created when veterinary medicine commanded little prestige.

Hospital staff—which included surgeons, other veterinary personnel, and grooms—treated animals for innumerable conditions, such as pneumonia, azoturia, locomotive problems, lameness, bloat, hoof and mouth disease, distemper, and the occasional toothache. Offices for the surgeon and assistant surgeon were located on the first floor; sleeping quarters for the on-call assistant surgeon were on the third floor.

The hospital was designed with its patients in mind. Apart from the surgical staff offices, most of the first floor was a large, open area, paved with asphalt, equipped with a water supply and hose for easy cleanups, and illuminated by a skylight. In addition to providing natural light for surgeries, the atrium-like interior allowed students to watch operations from upper-story “galleries.” Surgery patients were bedded down, especially when the procedures were expected to be complex, and anesthetics were administered according to the species. Large animals received ether or chloroform while dogs and smaller animals received only ether, as their hearts could not tolerate chloroform.

On the first floor, seven stalls and four box stalls, plus a padded one for violent cases, offered accommodations to horses. An elevator, spacious enough to loft the largest patients, lumbered between the building's three levels. For ambulatory animals, and for evacuation in case of fire, a long incline stretched to the second floor where grooms' quarters and kennels for dogs and cats were located. This level also housed a pharmacy and an instrument area containing surgical tools such as delivery forceps, oversized stomach pumps, catheters, clamps used during castrations of stallions, and tooth and molar forceps, the latter being described by one chronicler of the period as having “great length of

handle, fastening upon the tooth by a screw, an altogether formidable-looking instrument.”

The hospital's third floor housed the hay and grain loft, the workrooms, and the harness room. The building's basement offered stalls for cows and contained a blacksmith forge; shoeing animals properly was considered as important as any of the more involved treatments provided to patients.

The 1899 *Boston Daily Globe* article about the hospital described the dramatic saves that occurred on a typical day. A horse suffering temporary paralysis of his hind limbs was rushed to the hospital by ambulance; miraculously, he was nursed back to recovery. A horse with a fractured pelvis recovered as well, aided by a traction system of pulleys and hoists that relieved some of the weight borne by the injured bones. A Yorkshire terrier who had been rescued from a house fire in “a scorched and senseless heap” was nursed back to health, and surgeons removed a sliver from the eye of an Irish terrier, a painful condition he had been growling about for nearly a year. The reporter also witnessed “spaniels and Maltese poodles and pointers and beagle hounds that had undergone surgical operations and lived to bark about it.”

#### To the Four Winds

Unfortunately, although business was brisk at the hospital, the veterinary school's general finances were sluggish. Yearly reports cited financial difficulties, the lack of an endowment, and shortfalls in faculty salaries as chronic problems. By the end of the nineteenth century, it was clear the school would need to close. The Free Clinic ceased operations on November 22, 1900, and the Village Street hospital closed on June 1, 1901.

The school had graduated 128 students during its brief existence. Harvard University paid the tuition of the remaining students to attend the University of Pennsylvania's veterinary department, where all but three transferred at the beginning of the new academic year. One entered another veterinary school, and two transferred to HMS.

The Village Street hospital was taken over by Frederick Osgood, its supervisor for years, and it operated as an animal hospital until 1964, when it was destroyed in the taking of land for urban renewal.

Much speculation has arisen as to the precise cause of the veterinary school's demise. Some have postulated that the school was ahead of its time, created when veterinary medicine commanded little prestige because it was the purview of nonscientific practitioners. Others have suggested that it came too late, that the power of horses was being replaced by the horsepower supplied by the combustion engine.

Those closest to the school during its demise, though, cite the lack of endowment as the fundamental reason for its failure. In a 1900–01 report to the president and treasurer of Harvard College, Lyman gently takes the readers to task for their failure to endow the veterinary school, pointing out that similar institutions at the University of Pennsylvania and Cornell had been “handsomely taken care of in this respect.” For Harvard's school, he added, “hope had finally to be abandoned”; it could not continue as a “long and unaided endeavor.”

With the shuttering of its veterinary school and transfer of its animal hospital, Harvard lost forever a special connection with its animal friends. ■

*Anthony S. Patton '58 is a retired thoracic and vascular surgeon whose career was centered at Salem Hospital in Massachusetts.*



# A Whole New Ballgame

Langdon Frothingham



During its short tenure, the Harvard School of Veterinary Medicine could count among its graduates one of the first African Americans to earn a professional veterinary degree and the first dean of veterinary medicine at a major university. Perhaps most surprising, though, was the alumnus who became the only undefeated football coach in the history of the University of Nebraska.

Henry Stockton Lewis, class of 1889, may well have been the first person of African descent to earn a veterinary degree in the United States. Lewis, who also would prove to be a leader in the development of the veterinary profession in Massachusetts, originally worked in his father's profession: hairdressing. In October 1885, however, the 27-year-old barber set aside his shears and, as one of ten—among them a shipping clerk, a druggist, and an ice dealer—enrolled in Harvard's veterinary school.

Four hard years later, degree in hand, Lewis moved to Chelsea, Massachusetts, where he practiced veterinary medicine and maintained an active presence in local and state politics. Lewis was appointed to two terms on the Massachusetts Board of Veterinary Registration. His work on this board ultimately helped establish it as the state entity that defined and enforced professional standards for Massachusetts veterinarians.

A graduate of the class of 1894, Richard Pope Lyman also was following his father's lead. Son of Charles Parker Lyman, the first dean of the Harvard veterinary school, the younger Lyman became the first dean of the veterinary science division at Michigan Agricultural College, an institution that would become Michigan State University. The veterinary division was launched in 1910 with Lyman's arrival and followed a rigorous curriculum, echoing the one Lyman had experienced at Harvard.

During his decade-long tenure, Lyman saw to it that students not only were trained in animal husbandry and sanitation but were also prepared to "cooperate with stock

owners and veterinary surgeons in the investigation and prevention of animal ailments." These efforts recall those of the Harvard president, Charles Eliot, who emphasized how students could contribute to the public good by combating disease and injury in the animals people depended on for food and labor.

Langdon Frothingham, class of 1889, had one aspect to his career that made it more unusual than the careers of many Harvard veterinary school graduates. He served as the first, and only undefeated, coach of what would become a football powerhouse: the Nebraska Cornhuskers.

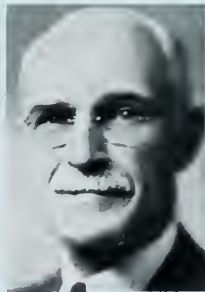
A leader in infectious disease research in animals, Frothingham studied tuberculosis, glanders, mycosis, and rabies. He codiscovered an infectious disease in cattle that was caused by an organism similar to the tubercle bacillus. This disease became known as John's Disease, an abbreviation of John's and Frothingham's Disease.

Frothingham also was a pioneer in the fields of medical mycology and veterinary pathology. His histologic investigation of more than a thousand rabid dogs established that a particular nerve bundle became inflamed in infected animals, a practical marker for pathologists faced with examining dead animals suspected of carrying rabies but whose bodies are partially decomposed or whose heads are missing or damaged.

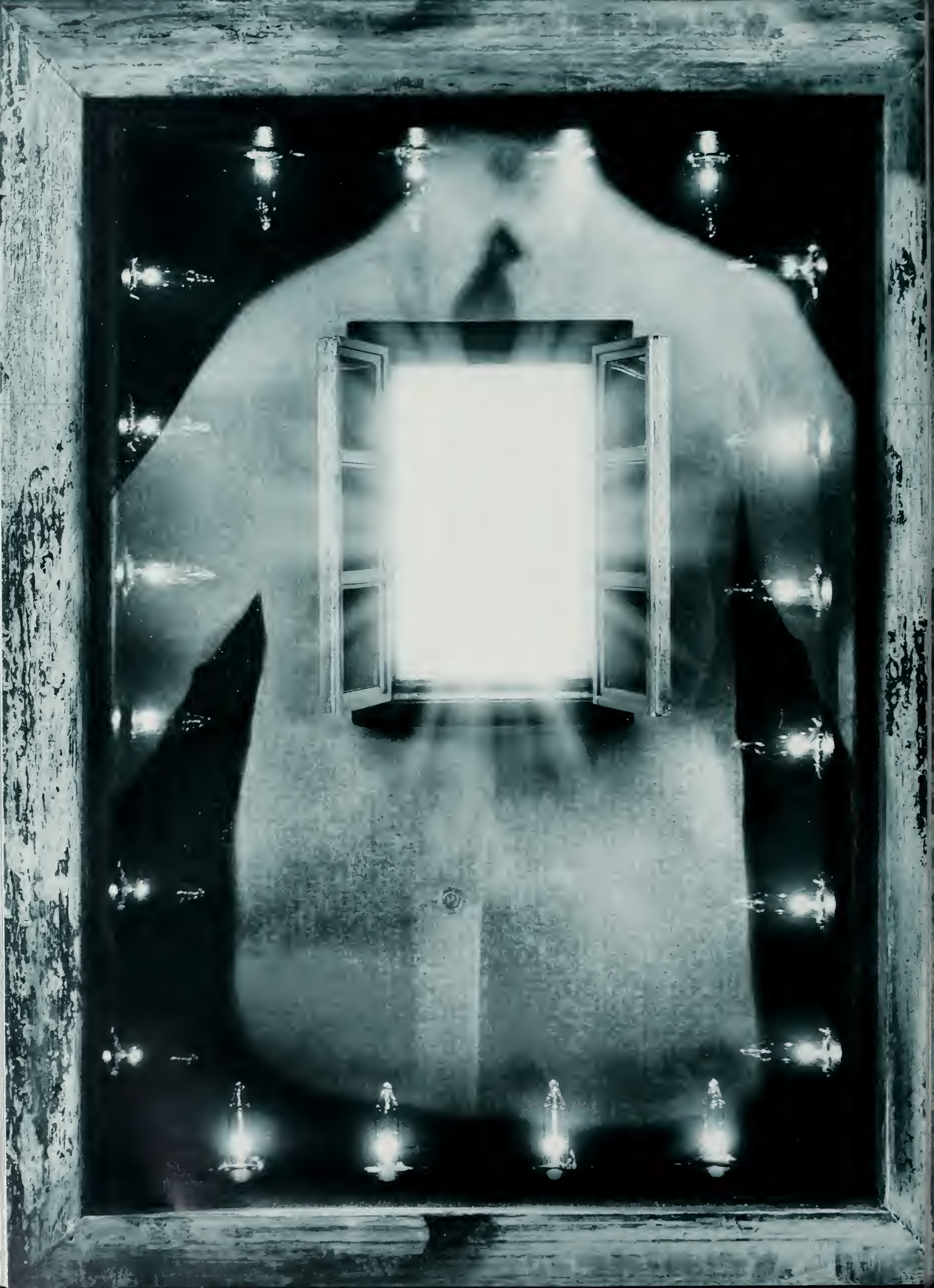
Frothingham's posts took him from Nebraska to Germany and ultimately back to Boston to serve as an instructor in pathology in Harvard's veterinary school and as a professor of bacteriology and comparative pathology at Harvard Medical School.

Although a pioneer in his profession, Frothingham's brief role as a coach gained him a far broader legacy. After graduation from Harvard's veterinary school, he accepted an appointment as instructor at the University of Nebraska in Lincoln. The university had been attempting to establish the game of football, but was having trouble finding someone knowledgeable enough in the sport to lead the team. Enter Frothingham, who, when he

moved west, not only had carried an understanding of the game, nurtured during his Harvard days, but had also packed a football in his luggage. He became the coach of the young Nebraska team, then called the Old Gold Knights. The choice proved providential; his enthusiasm for the game succeeded in inspiring the team to victory in both games of its 1890–91 season, giving Frothingham an undefeated record yet to be matched by another of Nebraska's coaches. ■



Henry Stockton Lewis (left) and Richard Pope Lyman





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Harvard  
Medical School  
students explore  
what it means  
to become  
a physician.

U L

OF A DOCTOR

FACING PATIENTS—REAL PEOPLE WITH DISTINCT NEEDS—FOR the first time can be a formidable experience for medical students. The technical principles they have labored to learn suddenly seem less powerful and less a measure of their abilities. What they now confront is the challenge of developing empathy, of cultivating an understanding of the people they seek to aid. The essays collected in the recently released book *The Soul of a Doctor* chronicle this transformation among Harvard Medical School students as they learn to take responsibility for the health and lives of their patients—and to master the art of doctoring.

# NIGHT OF RECKONING

by KIM-SON NGUYEN

She looked up, her eyes weary, her mouth sour with acidic vomit. The dangling nose ring again caught my attention. "How are you feeling now?" I asked, almost whispering, futilely trying to respect her privacy as she lay on a stretcher in the hallway to the trauma area. "Still in lots of pain," she whispered back. After four hours of writhing with pain and vomiting on the stretcher, she had learned to give up begging to be seen by a real doctor and had resigned herself to accepting a third-year medical student as her only caregiver. Her female companion had fallen asleep on a chair at the foot of the stretcher, oblivious to all the vomiting, lacerations, gunshot wounds, and two-story jumps occupying the emergency department at three o'clock in the morning.

I ran out of things to say and patted my patient's pale, IV-pierced arm. She looked even younger than her age. I could imagine myself reporting at morning rounds: "Twenty-year-old female, status post-abortion three months ago, presented with a three-day history of diarrhea and bright red blood per rectum..." I wondered whether the residents at rounds would ever put a face to my patient. Perhaps they would never place a ring on that young nose.

"I'm thirsty. Could I have something to drink?" she asked again, for the fourth or fifth time.

"We're trying not to give you anything by mouth, in case you need to go to the operating room." I paused. "But I guess you could take some ice cubes." The fact that, after weeks of following orders, I had made a decision suddenly seemed momentous. A strange sense of pride took over, until her pained face brought me back to reality.

"Thank you," she said.

Three o'clock. Then four. Then five. More abdominal-pain cases passed through, with a few lower-back injuries, one intoxication, and the usual few who were verbally abusive. Pains were mixed together; women and men, the young and the old, the drunks and the addicts, the poor and the wealthy, the longtime Bostonians and the been-here-three-weeks Haitians blended together into an amorphous mosaic of human suffering, rage, and anxiety. Five o'clock in the morning. Was it really five already? I sat down on a blood-stained green plastic chair in a room near the triage area for a quick break.

Three weeks in the wards and almost three weeks in the emergency department had penetrated the core of my soul. I did not know how. I just knew that something inside me had been affected, and I was changing invisibly but, paradoxically, so clearly. How was I supposed to feel when watching an abdomen being cut by a No. 15 blade, the fascia separated by a Bovie set at 40 watts, powerful enough to fill the room with the nauseating smell of burning flesh? When blood and stool from a perforated small bowel overwhelmed the suction and flooded the floor of the operating room? When the team stopped resuscitation efforts and pronounced the patient—a husband, a

*These essays were excerpted from The Soul of a Doctor: Harvard Medical Students Face Life and Death (Algonquin Books, 2006)*

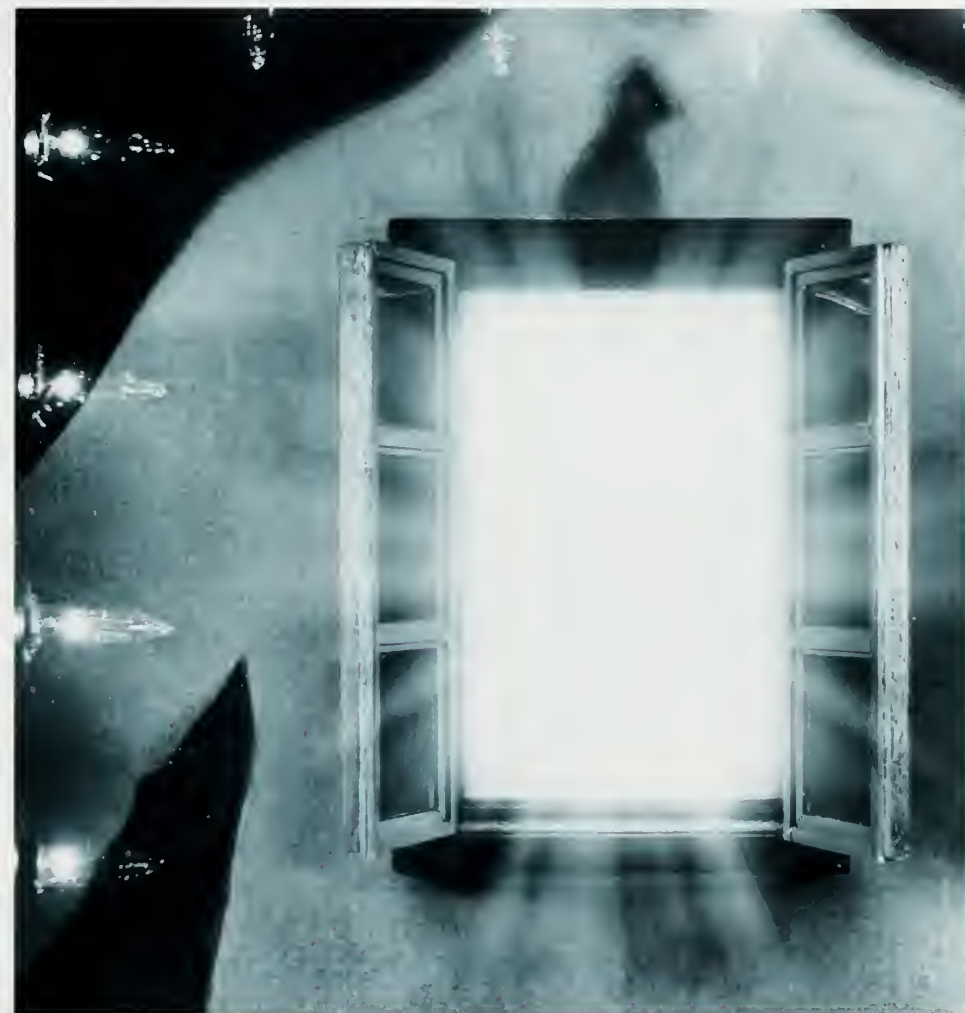


mother, a child—dead? How was I supposed to feel when my patient cried with pain from broken bones, crushed tissue, and lost hope while I stood quietly by her bedside, equally hopeless?

Reflection seemed impossible when the bombardment of emotions never stopped. I let everything in, perhaps foolishly, perhaps stubbornly. Everything I had seen remained in me, hiding in my cells, penetrating my heart. I had thought I would cry, but to my surprise I did not. After 24 hours at the emergency department, I would go home and sleep most of the day. Sleep provided the unique luxury of nonexistence and nonfeeling. Then I would awaken and return to the hospital, deceiving myself that I was fresh for another day, all the while knowing that I would feel the burden of the previous day—no, that is not completely true. I would feel the experience of the previous day and the many days preceding it. I loved my time in the hospital, but I wondered whether emotions would ever overwhelm intellectual growth, whether tears, when they came, would cloud learning.

I stood up and left that little room. My nose-ring patient had finally fallen asleep, her stretcher still lying in the hallway. I walked down the empty corridor to the radiology department to have her CT images read. Five minutes later, I returned to the triage area. The stretcher was still there, against my faint hope. She was awake again, retching but not throwing anything up. She raised her head as I approached.

"Sorry," she murmured, probably for appearing so sick in front of me. More retching. I waited, savoring this lull in conversation. She finally



stopped trying to vomit and lay back down on the stretcher.

"Your CT scan shows that it's very unlikely you have appendicitis."

She let out a loud sigh, even managed to flash a smile of relief. "So I don't have to be operated on?"

"No," I said quietly.

She closed her eyes for a moment. "I'm so happy to hear that."

I stood there, feeling my heels pressing down hard on my Dansko clogs. The CT images were still fresh in my mind. The multiple masses

were worrisome to the radiologists and even to my untrained eyes. Of course, I wasn't going to tell her anything else. More tests were to be done. No cancer yet, despite the masses throughout her abdomen. No cancer yet.

I walked away from her stretcher. Suddenly I wanted to cry. ■

*Kim-Son Nguyen '07 is pursuing a master's degree in public policy at the John F. Kennedy School of Government. He plans to seek a residency in internal medicine.*

# FROM HOOFBEATS TO

**T**he Saudi government had sent the 12-year-old boy to Children's Hospital in Boston to receive the best medical care in the world. I had heard his story before starting my pediatrics rotation. He was the Toll receptor mutation on the eighth floor, one of a handful of people worldwide with this genetic defect. In fly and mouse models, the Toll receptor and the molecular pathway in which it operates are necessary for embryonic development and basic immune function; animals with this mutation cannot defend against simple bacterial infections.

How remarkable, I thought, it would be to see the manifestations of such a mutation in a human being. This was why I had wanted to do a pediatrics rotation at the renowned hospital: to see zebras. Good doctors think of horses when they hear hoofbeats, but they never forget that zebras occasionally sound those beats.

This boy's case was a *zebra's zebra*. Some in the scientific-medical community view patients like him as natural experiments, individuals with inborn genetic defects exposed to the light of science. A scientist can spend years studying a mouse that carries a mutation like his. To the medical world, exquisite knowledge and suffering were embodied in that young boy.

On the first day of my rotation, the immunology fellow presented the boy's case. The fellow seemed enthralled, especially when he was discussing how this patient was going to be studied. Apparently a great deal of scientific legwork remained, because the mutation didn't fit neatly into any classic categories. The intellectual substance was undeniably thrilling, yet we seemed to be fetishizing a rare bird rather than treating a sick child.

## THE HEALING CIRCLE

by CHELSEA ELANDER  
FLANAGAN BODNAR

**I**sometimes try to attend a nearby church, but more often than not I am an hour late or early because I can never keep straight whether the services are at nine and eleven or eight and ten. More than once I have ended up spiritualizing with the *Sunday Times* and a double-tall latte at Starbucks rather

than in that stone-on-the-outside, seventies-décor-on-the-inside Episcopal church. But on the Sunday after my first month of inpatient medicine, finding time for church seemed more important than ever. Even though I arrived an hour early, I returned after my latte to a pew in the back.

This Sunday, the members of St. Paul's were commemorating the 30th anniversary of the Episcopal Church's decision to allow women into the clergy. Coffee hour was also going to be especially elaborate in celebration of the lesbian minister's recent marriage; the members of the hospitality committee had outdone themselves on post-service cake, cookies, and punch.

During this service, church members were given the chance to offer individual prayers for healing. After communion—which was received in a perpetually



# HEARTBEATS by HAO ZHU

Several days later, while on call, I had an opportunity to see the boy. One of the female doctors knocked on the door to give the mother time to don her veil. As we put on our own gowns and masks, the intern mused aloud for a moment about what he would say if the mother asked what was going to happen. He asked the senior resident for advice, but she had none; there was no real therapeutic plan. Without having come up with a good script, we knocked again and walked into the room.

It was late at night, and with the blinds drawn, the room had taken on a ghostly atmosphere. The boy's mother looked at us through the sliver of her veil. There was no telling what her face was expressing, much less what she looked like. I could only guess whether she was hopeful or upset or resigned, given their six-week stay with no opti-

mistic or even clear endpoint. The patient's little brother also was there, smiling and grabbing his mother's leg, conspicuous in his normalcy.

The mother approached us like many patients' parents do: as if the arrival of the doctors would somehow help her son. The way she moved toward us showed she still harbored hope. But when I looked at the boy, I could tell he had little time left and that keeping him comfortable was the only medicine still available.

He was tiny, barely three feet long, and cocooned in a fetal position. A machine blew air in and out of his chest. He didn't seem to be in pain, though it seemed as if his soul, a full human soul, was suffocating in a congested, ravaged body. He didn't speak; he may have been too sick, or he may simply not have understood any English. But I was glad we couldn't

talk to him. If I had been in his place, I wouldn't have wanted to talk to anyone. I would be wondering why the doctors were keeping me alive. What the hell was all this—the doctors, the examinations, the endless blood draws? It must have seemed like a sick game to him. I wondered what was going through his mind as his eyes met ours. I hoped it was nothing at all, only numbness.

As I took in the child's misery, the intellectual excitement I had felt drained away. It was a stark and uncomfortable realization. He was both a gift and a curse to medicine: A gift because we could learn about his missing gene and its role in immunity. A curse because his suffering was as terrible as his mutation. ■

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*Hao Zhu '05 is an internal medicine resident at the University of California at San Francisco.*

forming and dissolving circle around the front of the sanctuary—if you stay standing, the special healing-prayer crew will approach you ready to lay on hands and anoint you with oil. I had never considered remaining up there for even a second longer than necessary. I preferred my observer status in the back of the church.

But today, for some reason, that oh-so-public standing for a little extra healing seemed like not such a bad idea. As the front of the room rose to start the winding and unwinding communion circle, I wondered why I heard the offer for healing so differently this week. I wasn't sick. No one around me was sick. I was elated to be starting a much calmer month. I had just read the paper while drinking coffee for the first time in weeks.

Then they came clearly into my mind: Ms. Huntington, Ms. Mission, Roseann, the first patients with whom I had sat as

each heard terrible news or waited in the terror of not knowing or gasped their final breaths in that huge hospital. As my turn to rise and circle for communion got closer, tears came to my eyes, and I knew that despite all the latte drinking, I was still in need of help in bringing this month to a peaceful close. Perhaps, I thought, I was drawn to standing in front of the whole congregation with the prayer-for-healing team because I now knew real patients for whom I could pray for healing. But in as much time as it took for the row in front of my own to rise and begin their ambling journey to communion, I knew the need for healing was also, and most immediately, my own.

So I stood up there with the communion circle dissolving around me. It took only a few moments of my standing there alone for them to see me. Maybe they knew I sat in the back and rarely went to

coffee hour, but the two women—one young, with a dyed white streak in her dark hair, and the other older, larger, in an orange scarf—approached. The young one put her hand on my head; the older one came with the oil. They asked for whom the prayer was to be prayed. I smiled as I found myself stumbling to say that it was for me, and for the whole team, really—probably meaning everyone from the team that listens to me at night, to the team that really had the responsibility for the patients I'd seen this month. The healing-prayer crew was thrown only for an instant before they proceeded with earnest prayers for this mysterious whole team and me. I returned to my seat in the back pew. I felt silly. I felt better. ■

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*Chelsea Elander Flanagan Bodnar '06 will undertake her pediatrics residency at the University of Washington Affiliated Hospitals in Seattle.*

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